

U.S. Department of the Interior  
**Bureau of Land Management**

---

**ENVIRONMENTAL ASSESSMENT  
DOI-BLM-AZ-C010-2014-0035-EA  
Hot Springs Allotment  
Grazing Permit Renewal**

Kingman Field Office  
2755 Mission Boulevard.  
Kingman, AZ 86401

July 2014

**This page left intentionally blank.**





1	INTRODUCTION.....	3
1.1	Background.....	3
1.2	Purpose and Need.....	3
1.2.1	Decision to Be Made.....	4
1.3	Conformance with Land Use Plan and Other BLM Plans.....	5
1.3.1	Kingman Resource Area RMP.....	5
1.4	Scoping and Issues.....	6
1.4.1	Consultation, Cooperation, and Coordination.....	6
1.4.2	Native American Consultation and Coordination.....	7
1.4.3	Issues Identification.....	7
1.5	Relationships to Statutes, Regulations, or Other Plans.....	7
2	PROPOSED ACTION AND ALTERNATIVES.....	8
2.1	Actions Common to All Alternatives.....	8
2.2	Actions Common to Proposed Action and Yearlong Grazing Alternative.....	8
2.3	Proposed Action.....	9
2.3.1	Existing Range Improvements.....	9
2.4	Yearlong Grazing Alternative.....	10
2.4.1	Existing Range Improvements.....	10
2.5	No Livestock Grazing Alternative.....	10
2.6	Alternatives Considered but Eliminated From Detailed Analysis.....	10
3	AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES.....	11
3.1	General Project Setting.....	11
3.1.1	Landscape Setting.....	11
3.1.2	Climate.....	13
3.2	Elements/Resources of the Human Environment.....	13
3.3	Resources Present and Brought Forward for Analysis.....	15
3.3.1	Invasive, Non-native Plant Species.....	16
3.3.1.1	Environmental Consequences to Invasive, Non-Native Plant Species.....	16
3.3.2	Socioeconomics.....	17
3.3.2.1	Environmental Consequences to Socioeconomics.....	17
3.3.3	Soils.....	18
3.3.3.1	Environmental Consequences to Soils.....	18
3.3.4	Migratory Birds.....	19
3.3.4.1	Environmental Consequences to Migratory Birds.....	19
3.3.5	Special Status Species.....	21
3.3.5.1	Threatened or Endangered Species.....	21
3.3.5.1.1	Environmental Consequences to Threatened or Endangered Species.....	22
3.3.5.2	Sensitive Species.....	23
3.3.5.2.1	Environmental Consequences to Sensitive Species.....	23
3.3.6	Vegetation.....	26
3.3.6.1	Environmental Consequences to Vegetation.....	26
3.3.7	Wildlife.....	27
3.3.7.1	Environmental Consequences to Wildlife.....	28
3.4	Cumulative Effects.....	28
3.4.1	Past and Present Actions.....	30
3.4.2	Reasonably Foreseeable Actions.....	30
3.4.3	Analysis of Cumulative Effects.....	31
3.4.3.1	Invasive, Non-Native Plant Species.....	31
3.4.3.2	Socioeconomics.....	32
3.4.3.3	Soils and Vegetation.....	33
3.4.3.4	Migratory Birds, Special Status Species and other Wildlife.....	34

4	LIST OF PREPARERS .....	35
5	REFERENCES, ACRONYMS .....	35
6	APPENDICES.....	38
	Appendix A – Hot Springs Allotment Evaluation of Rangeland Health, dated August 2, 2011.....	38

#### List of Tables

Table 1. Summary of Grazing Permit for Hot Springs Allotment.....	3
Table 2. Statutes, Regulations and Other Plans Relevant to the Proposed Action .....	7
Table 3. Comparison of the Proposed Action to Alternatives .....	8
Table 4 Grazing proposed under the Proposed Action. ....	9
Table 5 Grazing Proposed under the Yearlong Grazing Alternative. ....	10
Table 6. Elements/Resources of the Human Environment.....	13
Table 7. The four dominant ecological sites by soil map number and acreage.....	18

#### List of Figures

Figure 1: Hot Springs Allotment in the Wikieup vicinity of Kingman Field Office. ....	5
Figure 2: Hot Springs Allotment. ....	12
Figure 3: Cumulative Effects Assessment Area .....	29

# 1 INTRODUCTION

The Bureau of Land Management (BLM) is proposing to fully process the term grazing permit on the Hot Springs Allotment (00046), managed by the BLM Kingman Field Office (KFO), in accordance with all applicable laws, regulations, and policies.

The Hot Springs Allotment is located west of the Aquarius Mountains approximately three miles southeast of Wikieup, Arizona adjacent to U.S. Highway 93 (Figure 1). The Hualapai-Aquarius Grazing Environmental Impact Statement (1981) identified this allotment as a category<sup>1</sup> C (custodial), perennial/ephemeral allotment. It is comprised of 1,062 acres of public land and 205 acres of private land. A land health evaluation of the allotment was completed in 2011 and is attached in Appendix A.

## 1.1 Background

The Hot Springs Allotment grazing permit was renewed with the same terms and conditions for a 10-year period beginning October 1, 2010, pursuant to Section 416 of Public Law 111-88, pending compliance with applicable laws and regulations. Compliance with all applicable laws and regulations includes consultation, coordination and cooperation with affected individuals, interested publics, States, and Indian Tribes; completion of the applicable level of National Environmental Policy Act (NEPA) review; consultation with the United States Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act; and ensuring that allotments are achieving or making significant progress toward achievement of land health standards.

This environmental assessment (EA) has been prepared to disclose and analyze the potential environmental consequences associated with a proposed grazing permit renewal. Table 1 summarizes the current grazing permit for the allotment.

**Table 1. Summary of Grazing Permit for Hot Springs Allotment**

Livestock kind and number	Season-of-Use	AUMs <sup>2</sup>
20 Cattle	12/15 to 3/3	52

## 1.2 Purpose and Need

The purpose of this action is to provide for livestock grazing opportunities on public lands where consistent with meeting management objectives, including the Arizona Standards for Rangeland Health and Guidelines for Livestock Grazing Management (Arizona Standards for Rangeland Health [BLM 1997]).

The need for this action is established by the Taylor Grazing Act (TGA), the Federal Land Policy

---

<sup>1</sup> Category: All allotments are categorized as either improve, maintain, or custodial.

<sup>2</sup> AUM is the amount of forage necessary for the sustenance of one cow or its equivalent for a period of 1 month (43 CFR 4100.0-5).

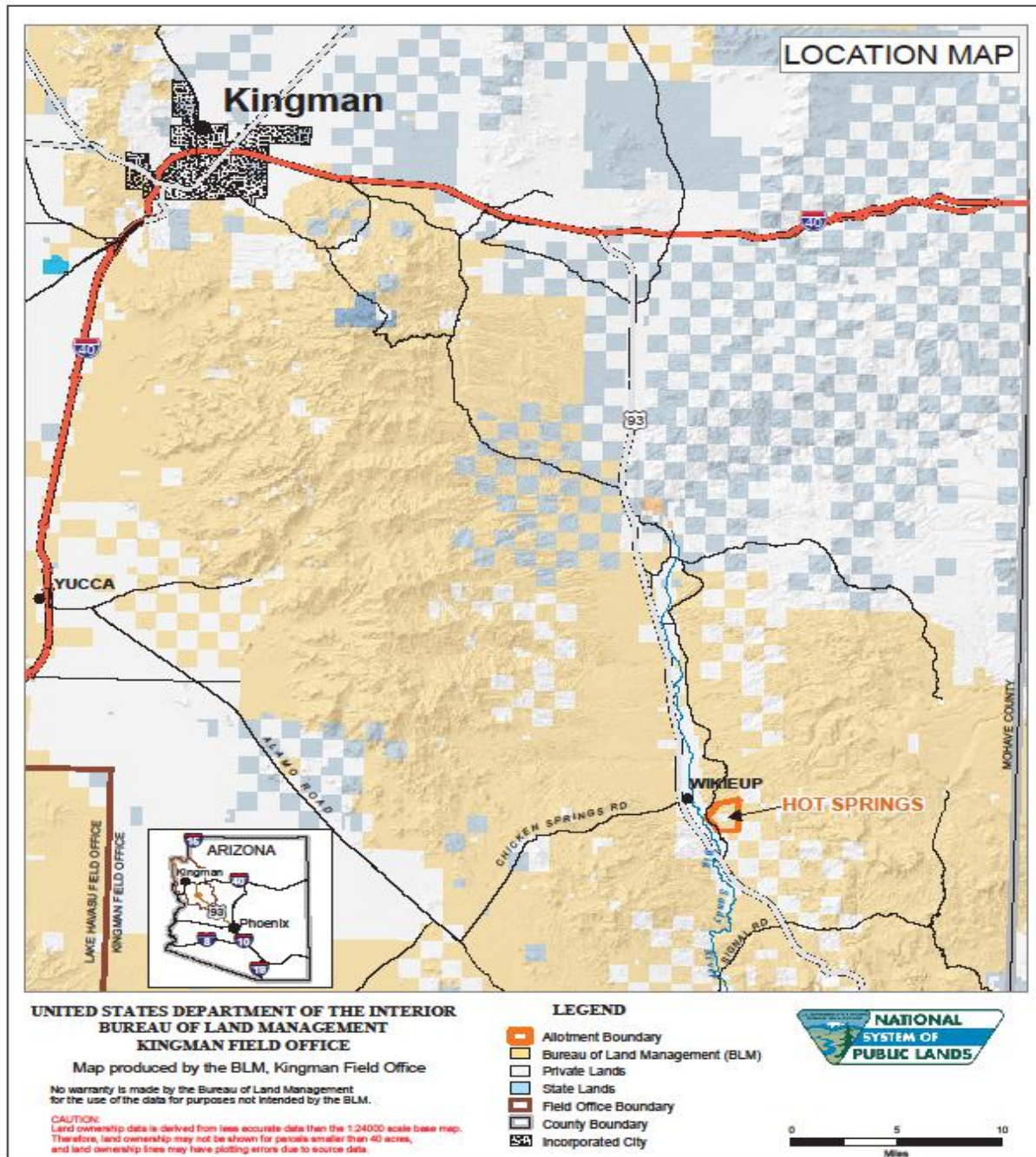
and Management Act (FLPMA), and the Kingman Resource Area Proposed Management Plan (Kingman RMP)/Final Environmental Statement (BLM 1995), which require that the BLM respond to applications to fully process and renew permits to graze livestock on public land. In detail, the analysis of the actions identified in the applications for grazing permit renewals and the alternative actions is needed because:

- BLM Arizona adopted the Arizona Standards for Rangeland Health and Guidelines for Livestock Grazing Management in all Land Use Plans in 1997 (BLM 1997). Under these standards, Rangeland health should be achieving or making significant progress towards achieving the standards and providing for proper nutrient cycling, hydrologic cycling, and energy flow. Guidelines direct the selection of grazing management practices and, where appropriate, livestock facilities to promote significant progress toward, or the attainment and maintenance of, the standards. Hot Springs Allotment Evaluation of Rangeland Health (Evaluation) dated August 2011, identified Standard 1 and Standard 3 were met at the two key areas. Standard 2 evaluates riparian-wetland sites and is not applicable to the Hot Springs Allotment as the sole spring on this allotment, Cofer Hot Springs, occurs on a fenced portion of private land. The BLM has no jurisdiction of springs located on private land.

The Kingman RMP identifies resource management objectives and management actions that establish guidance for managing a broad spectrum of land uses and allocations for public lands in the KFO. The Kingman RMP allocated public lands within the Hot Springs Allotment as available for domestic livestock grazing. Where consistent with the goals and objectives of the Kingman RMP and Land Health Standards, allocation of forage for livestock use and the issuance of grazing permits to qualified applicants are provided for by the TGA and the FLPMA.

### **1.2.1 Decision to Be Made**

The KFO Manager is the authorized officer responsible for the decisions regarding management of public lands within this allotment. Based on the results of the NEPA analysis, the authorized officer will issue a determination of the significance of the environmental effects and whether an environmental impact statement (EIS) would be required. If the authorized officer determines that it is not necessary to prepare an EIS, the EA will provide information for him/her to make an informed decision whether to renew, renew with modifications, or not renew the permit. If renewed, the EA also provides information about which management actions, mitigation measures, and monitoring requirements would be prescribed for the Hot Springs Allotment to ensure management objectives and Arizona Standards for Rangeland Health are achieved.



### 1.3 Conformance with Land Use Plan and Other BLM Plans

### 1.3.1 Kingman Resource Area RMP

The Proposed Action is in conformance with the Kingman RMP (1995) and the Statewide Land Use Plan Amendment for Implementation of Arizona Standards for Rangeland Health and Guidelines for Grazing Administration 1997. Arizona Standards for Rangeland Health were developed through a collaborative process involving the Arizona Resource Advisory Council and



the BLM State Standards and Guidelines team. The Secretary of the Interior approved the Standards and Guidelines in April 1997. The Decision Record, signed by the BLM Arizona State Director (April 1997) provided for full implementation of the Arizona Standards for Rangeland Health in all BLM Arizona Land Use Plans.

Implementation level decisions from the Hualapai-Aquarius Grazing Environmental Impact Statement (BLM 1981) were carried forward into the Kingman RMP. Management direction pertaining to this allotment can be found in the Hualapai-Aquarius Planning Unit section, Kingman RMP, Appendix 1, p. 461.

## **1.4 Scoping and Issues**

When the BLM began work on the Evaluation, a letter was sent to the interested publics. Recipients of the letter were asked to comment on whether they were aware of any issues associated with the continuation of grazing within the allotment. No issues were identified during the scoping process.

### **1.4.1 Consultation, Cooperation, and Coordination**

April 7, 2011 – BLM met with members of the Hualapai Tribe, (Wilfred Whatoname-Chairman, Erin S. Forrest, Joel J. Querta-Hualapai Department of Natural Resources (HDNR) Ag Program Manager, Scott Crozier-Game and Fish Manager, and Robinson Honani-Range Specialist) and discussed topics including grazing schedule, water development, fences, and the general condition of the allotment.

April 11, 2011 – BLM sent an email to the following members of the Hualapai Tribe (Wilfred Whatoname-Chairman, Sr, Erin S. Forrest, Joel J. Querta-HDNR Ag Program Manager, Scott Crozier-Game and Fish Manager, and Robinson Honani-Range Specialist) to answer questions on grazing schedule, water development, fences, and the general condition of the allotment for future use.

August 1, 2011 – BLM sent the Evaluation to the permittee and the interested publics.

November 18, 2013– BLM sent a letter to interested publics stating KFO will begin work on the environmental analyses for the Hot Springs Allotment and requested allotment-specific resource data or comments that would assist in understanding resource conditions on the allotment. KFO did not receive any comment letters from the interested public.

May 6, 2014 – Scoping was conducted at KFO, and the following resources were identified by the program leads for analysis in this EA: wild horses and burros; wildlife (including BLM sensitive species and migratory birds); threatened, endangered or candidate plant/animal species; soil resources; vegetation; invasive, non-native plant species; and socioeconomic values.

May 15 and June 17, 2014 – BLM coordinated with the permittee through email about the EA alternatives and when the EA will be available for public comment.



### 1.4.2 Native American Consultation and Coordination

Kingman BLM and the Colorado River District have entered into a Memorandum of Understanding (MOU) with the Hualapai Tribe (BLM 2012). The MOU clarifies that consultation is not necessary for grazing permit renewals and existing range improvements. Proposed range improvements do not require consultation unless located on an archaeological site or area of cultural significance.

### 1.4.3 Issues Identification

The ID Team carefully considers comments by BLM specialists, interested publics, the permittee and affected agencies in order to identify issues relevant to issuing a 10-year grazing permit. No issues were identified during the scoping process.

## 1.5 Relationships to Statutes, Regulations, or Other Plans

Table 2 lists statutes, regulations, policy and local area planning documents germane to the analysis area and alternatives.

**Table 2. Statutes, Regulations and Other Plans Relevant to the Proposed Action**

<b>Proposed Action Element</b>	<b>Authority</b>
Livestock Grazing	Taylor Grazing Act of 1934 as amended
Livestock Grazing	Federal Land Policy and Management Act of 1976 as amended
Livestock Grazing	Public Rangelands Improvement Act of 1978
Livestock Grazing	Grazing regulations under 43 CFR 4100 and associated BLM Manual policy
Wildlife	Endangered Species Act of 1973
Wildlife	Migratory Bird Treaty Act of 1918
Wildlife	Executive Order 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds
Wildlife	Sonoran Desert Tortoise Interagency Management Plan

## 2 PROPOSED ACTION AND ALTERNATIVES

Development of the Proposed Action for this EA was based on the results of an interdisciplinary rangeland health assessment conducted by the BLM. The current grazing system is described under the Proposed Action and is a baseline for comparison to two action alternatives (Table 3).

The goal for managing the allotment is to continue to provide for the native plant community physiological needs. The objective is to continue to meet Land Health Standards 1 and 3 for the next 10 years.

**Table 3. Comparison of the Proposed Action to Alternatives**

Alternative	Number & Kind of Livestock	Season-of-Use	AUMs	Proposed Range Improvements	Proposed Grazing System
Proposed Action	20 cattle 20 cattle	12/15 to 2/28 3/1 to 3/3	50 2	None	Follow previously permitted grazing schedule for a period from 12/15 to 3/3.
Yearlong Grazing Alternative	5 cattle	3/1 to 2/28	49	None	Change to grazing yearlong.
No Livestock Grazing Alternative	0 cattle	none	0	N/A	None

### 2.1 Actions Common to All Alternatives

#### Rangeland Health Standards

The allotment would be managed to achieve the following objectives, as described in the Arizona Standards for Rangeland Health:

1. Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate, and landform (ecological site).
2. Riparian and wetland areas are in properly functioning condition.<sup>3</sup>
3. Productive and diverse upland and riparian-wetland plant communities of native species exist and are maintained.

### 2.2 Actions Common to Proposed Action and Yearlong Grazing Alternative

#### Ephemeral Grazing

In years of abundant ephemeral bloom, ephemeral grazing may be authorized. Decisions to allow livestock use of ephemeral vegetation will be guided by IM AZ-94-018. In Desert Tortoise habitat (which includes the entire allotment) decisions to allow ephemeral grazing would also be guided by recommendations by the Arizona Interagency Desert Tortoise Team (AIDTT). The AIDTT recommends that ephemeral grazing should not be authorized unless the pasture reaches at least 280 lbs./acre of ephemeral forage and utilization of annual forage should not exceed 50%.

<sup>3</sup> This standard does not apply in the Hot Springs Allotment. There are no wetland/ riparian areas in the allotment.

## Monitoring and Adaptive Management

BLM resource specialists would periodically monitor the allotment over the 10-year term of the grazing permit to ensure that the fundamentals or conditions of rangeland health are being met, in accordance with 43 CFR 4180. If monitoring indicates that desired conditions are not being achieved and current livestock grazing practices are causing non-attainment of resource objectives, livestock grazing management on the allotment would be modified in cooperation with the permittee. Adaptive management allows the BLM to adjust the timing, intensity, frequency and duration of grazing; the grazing management system; and livestock numbers temporarily or on a more long-term basis, as deemed necessary. An example of a situation that could call for adaptive management adjustments is drought conditions. If a permittee disagrees with the BLM's assessment of the resource conditions or the necessary modifications, the BLM may nevertheless issue a Full Force and Effect Grazing Decision to protect resources.

### 2.3 Proposed Action

This alternative would result in a new 10-year permit under the previously authorized livestock numbers and season-of-use. The removal of one of the current terms and conditions is proposed.

**Table 4 Grazing proposed under the Proposed Action.**

Allotment Name	Livestock			Active AUMs	% Public Land
	No.	Kind	Season of Use		
Hot Springs	20	Cattle	3/1 to 3/3 and 12/15 to 2/28	52	100

#### Terms and Conditions:

The following term and condition would be removed from the existing permit:

“The Hot Springs Allotment is perennial/ephemeral under Custodial management.” This would be removed because it is a management categorization of the allotment as identified in the Kingman RMP and is not a term and condition of the grazing permit. In 2010, it was placed on the permit in error. Its removal would have no environmental impact.

The following terms and conditions would remain on the permit:

For administrative purposes, livestock are authorized at 100 percent public land.

The permittee will provide the BLM a certified actual use report by March 15<sup>th</sup> of each year. This report will detail the number of livestock and periods of use (43 CFR 4100).

#### 2.3.1 Existing Range Improvements

Projects such as fences and water developments, associated with livestock grazing management have been installed over the last several decades and would continue to be maintained under this alternative. No new range improvement projects would be constructed and no modifications

would be made to existing projects.

## 2.4 Yearlong Grazing Alternative

This alternative would permit 5 cattle (49 AUMs) to graze yearlong from 3/1 to 2/28.

**Table 5 Grazing Proposed under the Yearlong Grazing Alternative.**

Allotment Name	Livestock			Active AUMs	% Public Land
	No.	Kind	Season of Use		
Hot Springs	5	Cattle	3/1 to 2/28	49	100

### Terms and Conditions:

Permittee will provide the BLM a certified actual use report by March 15th of each year. This report will detail the number of livestock and periods of use (43 CFR 4100).

### 2.4.1 Existing Range Improvements

Projects such as fences and water developments, associated with livestock grazing management have been installed over the last several decades and would continue to be maintained under this alternative. No new range improvement projects would be constructed and no modifications would be made to existing projects.

## 2.5 No Livestock Grazing Alternative

Under this alternative no livestock grazing would be authorized for the Hot Springs Allotment.

## 2.6 Alternatives Considered but Eliminated From Detailed Analysis

The No Action Alternative analyses effects from the current permit and will not be analyzed because the only difference between this alternative and the Proposed Action is the removal of one term and condition (Section 2.3 Proposed Action). Potential impacts to elements of the environment would therefore be the same as those described for the Proposed Action, so a separate analysis of the No Action alternative is not required (BLM 2008b).

### **3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

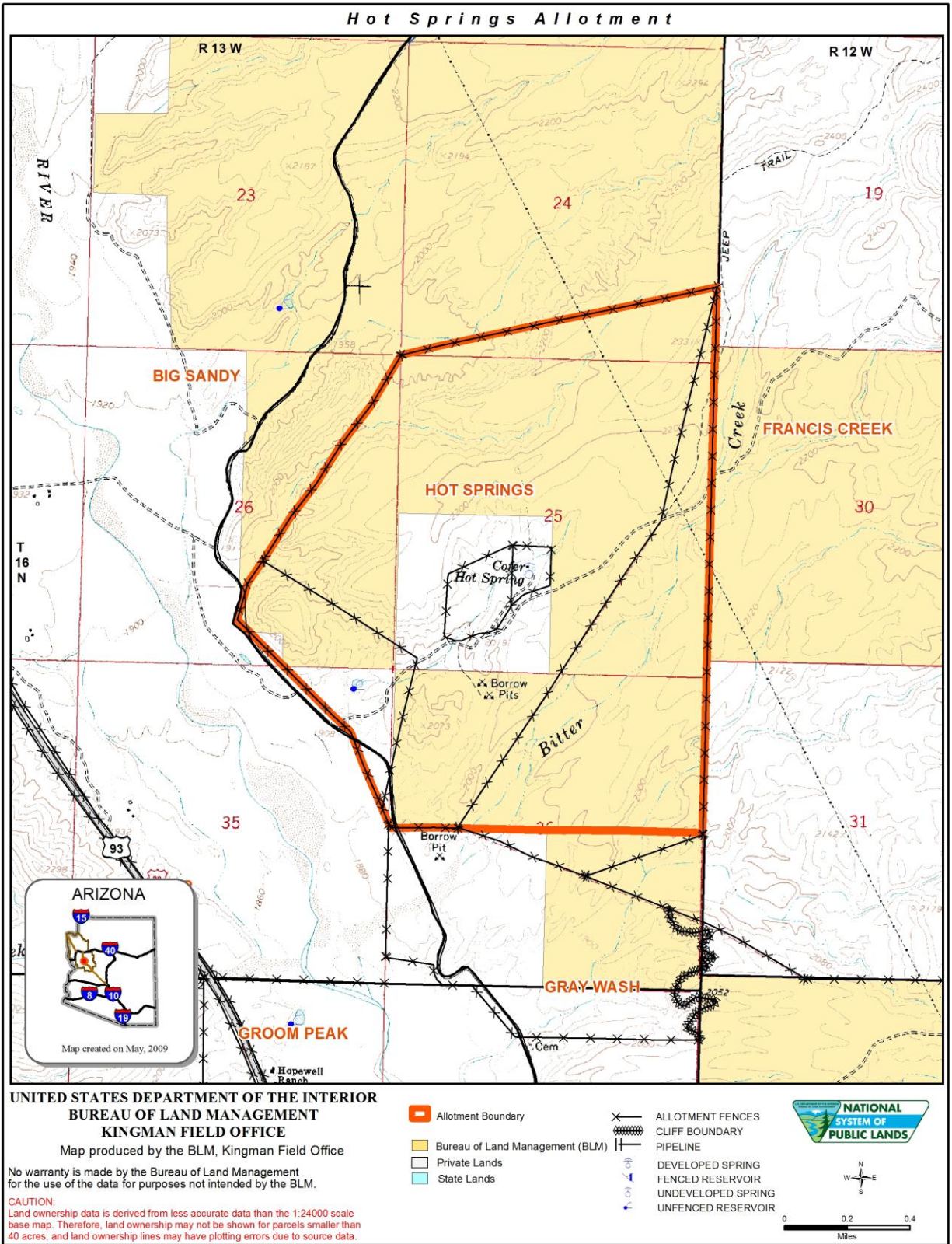
This chapter describes the general project setting and addresses standard critical elements of the human environment (H-1790-1, Appendix 5 of the BLM NEPA Handbook, as amended) and several other resources elements commonly affected by livestock grazing. A detailed discussion of the resources present in the action area can be found in the Evaluation.

#### **3.1 General Project Setting**

##### **3.1.1 Landscape Setting**

The Hot Springs allotment is located about 42 miles southeast of Kingman and 3 miles southeast of Wikieup, Arizona (Figure 1). This allotment lies on the west side of the Aquarius Mountains and within the basin and range province of northwest Arizona. Elevation varies from 2,000 feet along the Big Sandy Valley up to 2,400 feet in the eastern boundary of the allotment. The public lands located in the allotment are part of the Big Sandy Watershed. The Big Sandy River Valley flows north to south across the landscape, draining the public lands within the allotment. The western slopes of the Aquarius Mountains drain into the Big Sandy River Valley (Figure 2).

Activities such as agriculture, road and trail development, issuance of rights-of-way (ROWs) and borrow pit use have taken place on the allotment and affected the condition of the rangelands. See Section 3.4 Cumulative Effects for a discussion about effects from these activities.



**Figure 2: Hot Springs Allotment.**



### 3.1.2 Climate

Climatological data is available from a National Oceanic and Atmospheric Administration weather station in Wikieup, Arizona and from rain gauges in the immediate region. Over a 24-year period, precipitation has varied from a low of 1.82 inches per year to a high of 18.36 inches per year. The average over the last seventeen years is 8.9 inches at Wikieup (BLM 2011). This allotment is influenced by winter, Pacific frontal storms and summer convective storms. Approximately 65% of the annual precipitation falls during the cooler months of October through April with approximately 35% of the annual precipitation falling during the months of May through September. The winter storms are usually widespread, gently soaking rains while large quantities of precipitation can be dropped in very short periods of time during the summer monsoonal storms.

Allotment ecosystems may be realizing effects from climate change. The BLM's 2008 NEPA Handbook, H-1790-1, explains that a topic must have a cause-and-effect relationship with the proposed action or alternatives to be considered an issue (H-1790-1, p. 40). Climate change does not have a clear cause-and effect-relationship with the proposed action or alternatives. It is currently beyond the scope of existing science to identify a specific source of greenhouse gas emissions or sequestration and designate it as the cause of specific climate or resource impacts at a specific location. See Section 3.4.2 Reasonably Foreseeable Actions for more discussion about climate change.

### 3.2 Elements/Resources of the Human Environment

The BLM is required to consider many authorities when evaluating a Federal action. Those elements of the human environment that are subject to the requirements specified in statute, regulation, or executive order, and must be considered in all EAs (BLM 2008) have been considered by BLM resource specialists to determine whether they would be potentially affected by the Proposed Action. These elements are identified in Table 4, along with the rationale for determination of potential effects. If any element was determined to be potentially impacted, it was carried forward for detailed analysis in this EA; if an element is not present or would not be affected, it was not carried forward for analysis. Table 4 also contains other resources/concerns that have been considered in this EA. As with the elements of the human environment, if these resources were determined to be potentially affected, they were carried forward for detailed analysis in this document.

**Table 6. Elements/Resources of the Human Environment**

NP = not present in the area impacted by the Proposed Action  
NI = present, but not impacted to a degree that detailed analysis is required  
PI = present with potential for impact – analyzed in detail in the EA  
\* = Supplemental Authorities to Be Considered as Defined in H-1790-1 (page 139).

Resource/Critical Element	Presence	Rationale for Effect Determination
Air Quality*	NI	The allotment lies within the Mohave County PM-10 attainment area as classified by the Environmental Protection Agency. Effects from livestock operations were taken into consideration when the classification was made. Therefore all alternatives would be in conformance with PM-10 attainment area air quality standards.



Resource/Critical Element	Presence	Rationale for Effect Determination
Areas of Critical Environmental Concern	NP	There are no Areas of Critical Environmental Concern within this grazing allotment.
BLM or State Sensitive Plant Species	NP	There are no BLM or State Sensitive Plant Species within the allotment.
Cultural Resources*	NI	<p>There would be no new ground disturbance as a result of the Proposed Action or alternatives; therefore, no impact is anticipated to cultural resources. Sites exist in low to moderate density across the allotment. These sites include prehistoric artifact scatters, seasonal camps and historic Euro-American mining and ranching facilities.</p> <p>According to Arizona BLM Handbook H-8110, Guidelines for Identifying Cultural Resources (BLM 1999), livestock grazing actions, such as permit renewals are generally exempt from cultural resources surveys, and range improvements are land disturbing activities that require site-specific survey, this renewal is no exception to this. Since 1979, BLM archaeologists have conducted Class II and III surveys in grazing allotments administered by Kingman Field Office. These judgmental surveys focused on areas where cattle congregate such as water lots, loafing areas and cattle trails. Based on information from these surveys as well as information provided to BLM by local tribes, it was determined that adverse effects to significant cultural resources are not anticipated as a result of this permit renewal and continued use as a grazing allotment.</p>
Environmental Justice*	NI	The Proposed Action and the alternatives would have no disproportionately high or adverse human health or other environmental effects on minority or low income segments of the population.
Farmlands (Prime or Unique)	NP	There are no prime or unique farmlands within the allotment.
Fish Habitat*	NP	No fish habitat is present on the allotment.
Floodplains*	NP	There are no floodplains within the allotment.
Forests and Rangelands*	NI	No impact to forests and rangelands as defined by the supplemental authority referring to the Healthy Forests Restoration Act of 2003.
Fuels / Fire Management	NI	Fuels / Fire Management would not be impacted as a result of the Proposed Action or the alternatives.
Geology / Mineral Resources / Energy Production	NI	Geology / Mineral Resources / Energy Production would not be impacted as a result of the Proposed Action or the alternatives.
Invasive, Non-native Plant Species	PI	Carried forward for detailed analysis.
Lands / Access	NI	Lands/Access would not be impacted as a result of the Proposed Action or the alternatives.
Native American Religious Concerns*	NI	The permittee, the Hualapai Tribe, has not raised Native American Religious Concerns during consultation or coordination.
Paleontology	NP	Paleontological resources are not present within the allotment.

Resource/Critical Element	Presence	Rationale for Effect Determination
Recreation	NI	Recreation would not be impacted as a result of the Proposed Action or the alternatives.
Socioeconomic Values	PI	Carried forward for detailed analysis.
Soil Resources	PI	Carried forward for detailed analysis.
Threatened, Endangered or Candidate Plant & Animal Species and Critical Habitat*	PI	Carried forward for detailed analysis in this EA. There are no Threatened or Endangered animal or plant species or Critical Habitat within the allotment. Habitat for the Sonoran Desert Tortoise, a candidate species, is found on the allotment.
Vegetation	PI	Carried forward for detailed analysis.
Visual Resources	NI	Visual Resources would not be impacted as a result of the Proposed Action or the alternatives.
Wastes (Hazardous or Solid)*	NP	No known hazardous or solid waste issues occur in the allotment.
Water Quality (drinking / ground)*	NP	Surface water is found at Cofer Hot Springs, a fenced spring on private land. BLM has no jurisdiction over springs found on private land.
Wetlands / Riparian Zones*	NP	Cofer Hot Springs occurs within a fenced portion of private land. The BLM has no jurisdiction on springs located on private land.
Wild and Scenic Rivers*	NP	There are no wild and scenic rivers within the allotment.
Wild Horses and Burros	NI	The eastern portion of the allotment is within the Big Sandy Herd Management Area (Appendix A, page 8, Figure 3). Because the allotment is fenced, it is unlikely that wild burros range onto the allotment.
Wilderness*	NP	There is no designated wilderness within the allotment.
Wilderness characteristics	NP	There have been no wilderness characteristics identified within the allotment.
Wildlife (including BLM Sensitive Species and Migratory Birds*)	PI	Carried forward for detailed analysis.
Woodland / Forestry	NP	There are no woodland/forestry resources within the allotment.

### 3.3 Resources Present and Brought Forward for Analysis

The following elements are described in this chapter because they could potentially be affected by the Proposed Action and the alternatives.

- Invasive, Non-native Plant Species
- Socioeconomics
- Soils
- Threatened, Endangered or Candidate Animal Species
- Vegetation
- Wildlife (including sensitive species and migratory birds)

### **3.3.1 Invasive, Non-native Plant Species**

Red brome, a winter annual grass that is self-pollinating and produces large numbers of viable seeds, is spread by wind, water, animals, and humans. Red brome readily establishes in disturbed sites but has also shown the ability to establish in undisturbed landscapes. Red brome occurs throughout the allotment but its abundance is largely dependent on weather. Red brome is common throughout Mohave County.

#### **3.3.1.1 Environmental Consequences to Invasive, Non-Native Plant Species**

##### **Proposed Action**

In areas where livestock congregate and reduce the abundance or vigor of native plant species through grazing and trampling, the introduction or spread of invasive, nonnative plant species may be more likely. Cattle can also contribute to the establishment and spread of these species by transporting seeds on their hair and in their feces.

The season-of-use under this alternative would allow rest to the plant communities each year and would be expected to result in continued maintenance and possibly eventual increase in abundance and vigor of native forage species. Because of this, it is anticipated that the establishment, spread and persistence of red brome and other invasive, non-native plant species would be limited primarily to areas of surface disturbance. See Section 3.3.6.1 Environmental Consequences to Vegetation for more discussion about potential effects to vegetation from the alternatives.

Ephemeral grazing may be applied for and authorized in years when annual forage is abundant enough to meet the criteria of Ephemeral Grazing authorization (Section 2.2 Actions Common to Proposed Action and Yearlong Grazing Alternative, Ephemeral Grazing). Future ephemeral grazing authorization on the Hot Springs Allotment is expected to be very infrequent as the current permittee has not applied for this type of use in the 10 years they have held the grazing permit. Because of this and the guidelines for ephemeral grazing authorization (Section 2.2 Ephemeral Grazing), effects from invasive, non-native plants species would be expected to be minor.

##### **Yearlong Grazing Alternative**

Yearlong grazing would not provide rest to plant communities from grazing effects and would likely result in a gradual decrease in abundance and vigor of forage species and therefore, more bare ground and less competition for red brome and other invasive, non-native plant species. This situation would provide greater opportunity for establishment and spread of invasive, non-native plant species and would make it easier for those already established to persist. See Section 3.3.6.1 Environmental Consequences to Vegetation, for more discussion about potential effects to vegetation from the alternatives.

The effects from livestock congregating would be expected to be the same as in the Proposed Action except to a greater degree because the native plants in affected areas may not have recovery time prior to the return of livestock.

Effects from ephemeral grazing would be the same as described in this section, Proposed Action.

### **No Livestock Grazing Alternative**

Effects from livestock, as described in the other alternatives, would not occur with this alternative. With the absence of livestock, desirable plant species would be expected to be more vigorous and capable of reproduction, resulting in less bare ground and less opportunity for establishment, spread and persistence of red brome and other invasive, non-native plant species. See Section 3.3.6.1 Environmental Consequences to Vegetation for more discussion about potential effects to vegetation from the alternatives.

### **3.3.2 Socioeconomics**

Many livestock operations in Mohave County are dependent on federal and state lands. Sixty percent of Arizona's livestock operators depend on public lands to sustain their forage needs and operations. Public land grazing provides economic benefits to individual permit holders and contributes revenue to the local and regional economy. In addition to the contribution of ranching to the economy, ranching in the western U.S. often plays an important social role as residents of the rural west often identify with the tradition, land use, and history of ranching.

#### **3.3.2.1 Environmental Consequences to Socioeconomics**

##### **Proposed Action**

There would continue to be the same level of economic benefit to the permittee from the ranching operation revenues and to the local economy for any monies spent associated with the ranching operation. Sustaining these operations with continued use of this allotment as is currently permitted, would be expected to result in no change to the economic stability of the permittee or the local economy. No social effect is anticipated because livestock grazing would continue, causing no change to current tradition or way-of-life.

Ephemeral grazing may have a slight economic benefit to the permittee by allowing a maximum of 2 months of additional grazing in years when ephemeral growth is adequate but would be expected to have a negligible effect on the local economy.

##### **Yearlong Grazing Alternative**

There would be a slightly greater short-term economic benefit to the permittee with this alternative because the livestock management efforts would be less than with the Proposed Action. The livestock could remain on the public land yearlong, reducing the effort and expense in management as compared to the livestock being on private property. In the long-term, the yearlong grazing affects, which would lower the productivity of the rangeland, could reduce the

carrying capacity of the allotment, thus lowering the economic benefit to the permittee. Effects on social values and the local economy from this alternative would not be expected to be measurably different than from the Proposed Action.

Effects to the economy from ephemeral grazing would be the same as described in this section, Proposed Action.

### **No Livestock Grazing Alternative**

Without the grazing permit, the permittee would need to feed the livestock by another means for an additional 2.5 months of the year (current permitted time on public land). This would result in greater expense to the permittee because the cost of feeding cattle on private property far exceeds the cost to graze cattle on public land. Even so, the overall economic effects would likely be minor since the grazing permit authorizes relatively few AUMs (52). The same level of effect would be expected socially from the discontinuation of grazing on public land.

### **3.3.3 Soils**

Four (4) soil mapping units have been delineated within the Hot Springs Allotment according to the NRCS Soil Survey of Mohave County, Arizona, Southern Part, 2006. These soils occur in Major Land Resource Area (MLRA) 40-Sonoran Basin and Range and are located within Soil Survey Area 627 (Table 3).

**Table 7. The four dominant ecological sites by soil map number and acreage.**

<b>Ecological Site</b>	<b>MLRA 40 Soil Map Units</b>	<b>Acreage</b>	<b>% of total</b>
Loamy Breaks 7-10" p.z.	120	433	35
Sandy Bottom 7-10" p.z.	70	77	6
Loamy Bottom 7-10" p.z.	47	59	4
Limy Upland 7-10" p.z.	16	703	55
Soil Map Units and MLRA number are provided for use when accessing the soil information on the NRCS website. ( <a href="http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm">http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm</a> )			

#### **3.3.3.1 Environmental Consequences to Soils**

##### **Proposed Action**

The 2011 Evaluation determined that Arizona Standards for Rangeland Health for soils were met with the current grazing system. Appropriate vegetative type and amount were present to prevent soil movement beyond what is expected for the site. Because no changes to the grazing system will be made under this alternative, it is anticipated that livestock grazing will not prevent vegetative communities and soil condition from being maintained and possibly improved. See Section 3.3.6.1 Environmental Consequences to Vegetation for more discussion about potential effects to vegetation from the Proposed Action and the alternatives.

Effects to soils from ephemeral grazing would be expected to be minor. See Section 3.3.1.1 Environmental Consequences to Invasive, Non-Native Plant Species, Proposed Action for more discussion.

### **Yearlong grazing Alternative**

The Arizona Standards for Rangeland Health for soils may be met with this alternative but would be less likely than with the Proposed Action. Yearlong grazing would be expected to result in less reproductive success of desirable plant species and therefore, less protective cover for soil. Soil would be exposed and vulnerable to movement; its condition would not be expected to improve and would likely decline with this alternative.

Effects from ephemeral grazing would be the same as discussed in Section 3.3.1.1 Environmental Consequences to Invasive, Non-Native Plant Species, Proposed Action.

### **No Livestock Grazing Alternative**

With the absence of livestock grazing, it is expected that soil condition would be maintained and probably improved. The anticipated improvement would be due to greater reproductive success of perennial forage plants, absent livestock grazing, which would increase stabilization of the soil. Any improvement to soil condition would be expected to occur more quickly than with the Proposed Action. See Section 3.3.6.1 Environmental Consequences to Vegetation for more discussion about potential effects to vegetation from the Proposed Action and the alternatives.

## **3.3.4 Migratory Birds**

Migratory birds are protected and managed under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. 703 *et. seq.*) and Executive Order 13186. Under the MBTA nests (nests with eggs or young) of migratory birds may not be harmed, nor may migratory birds be killed. Executive Order 13186 directs federal agencies to promote the conservation of migratory bird populations.

Numerous migratory birds can be expected to nest and forage on the allotment. Migratory birds found on the allotment include the curved-billed thrasher, cactus wren, great horned owl, red tailed hawk, screech owl, gilded flicker, western burrowing owl and black-tailed gnatcatcher. The golden eagle and American peregrine falcon may also forage on this allotment but it provides no nesting substrate (trees or cliffs) for these two species.

The gilded flicker, western burrowing owl, golden eagle and American peregrine falcon are special status species and are addressed in Section 3.3.5 Special Status Species.

### **3.3.4.1 Environmental Consequences to Migratory Birds**

#### **Proposed Action**

Because this alternative has allowed this allotment to meet the Standards for Rangeland Health,

it is anticipated that migratory birds and other wildlife habitats would improve or be maintained for most species.

Grazing during plants' dormant period is expected to maintain or improve the frequency, cover, and productivity of key species such as big galleta, twinberry, Mormon tea, and saltbush, improving habitat for those species of wildlife that use these plants for cover and foraging. Properly managed livestock grazing is designed to cause minimal effects to rangeland resources, including wildlife habitat, by allowing rest from livestock grazing during forage species' growing season at least 1 in 3 years. Continuing to implement the Proposed Action grazing system would allow the plant community to continue to achieve the desired plant community (DPC) objectives and would result in maintaining or improving the ecological condition of the allotment (See Section 3.3.6.1 Environmental Consequences to Vegetation, Proposed Action.). It would also provide for the habitat needs (i.e., forage, cover, nesting sites, and shelter) of wildlife. Rest during the growing seasons will allow plants to fully seed providing sufficient seed production for seed eating species and residual forage for insects, which are important prey species to birds, reptiles and small mammals.

In years of abundant ephemeral bloom wildlife, like livestock, take advantage of the plentiful nutritious ephemeral forage. Livestock use of these plants is not allowed to exceed 50% and typically use is much less because of the great quantity of available ephemeral forage. Because the Hots Springs Allotment is in Desert Tortoise habitat, ephemeral grazing permits would not be authorized unless the pasture reaches at least 280 lbs./acre of ephemeral forage. This reduces the chance of ephemeral forage competition between livestock and wildlife. Once the ephemeral plants dry up and become unpalatable, livestock are removed.

The allotment will be rested from grazing when breeding birds are present; therefore, there would be no potential for livestock to trample the nests of ground nesting birds.

### **Yearlong Grazing Alternative**

This alternative would allow for grazing to occur yearlong which includes the spring and summer growing seasons and during the migratory bird nesting season. A potential gradual decline in the abundance and vigor of key forage species would affect seeds produced by these plants, and cover available to migratory birds and other wildlife. A decline in key forage species may cause an indirect decline in the amount and types of insects that occur on the allotment. This may indirectly affect the insect forage base available to birds that eat insects or feed insects to their young. Because cattle would be present during the bird nesting season, there is potential that trampling of nests by livestock could occur.

Effects from ephemeral grazing would be the same as discussed in this section, Proposed Action.

### **No Livestock Grazing Alternative**

Effects from the No Livestock Grazing Alternative are expected to be similar to those described in this section for the Proposed Action however; any improvement in range condition (wildlife habitat) is expected to occur more quickly under this alternative than under the Proposed Action.



Ephemeral grazing would not occur under this alternative and therefore all ephemeral forage would remain available to birds and other wildlife species.

### **3.3.5 Special Status Species**

Special status species include federally listed (threatened or endangered) or proposed and Bureau sensitive species, which include both Federal candidate species and delisted species within 5 years of delisting. The objectives of the BLM's special status species policy are: "To conserve and/or recover Endangered Species Act (ESA) -listed species and the ecosystems on which they depend so that ESA protections are no longer needed for these species; and to initiate proactive conservation measures that reduce or eliminate threats to Bureau sensitive species to minimize the likelihood of and need for listing of these species under the ESA" (BLM 2008c).

#### **Threatened or Endangered Species**

Designated Critical Habitat (USFWS 2005) and occupied habitat for the Southwestern Willow Flycatcher (willow flycatcher), a species listed as endangered by the USFWS, is found directly adjacent to but not within the Hot Springs Allotment boundary (BLM 2014). Habitat for this species near the project area is found along the Big Sandy River (Paradzick et al. 2000). See Section 3.3.5.1 Threatened or Endangered Species for more discussion about this species.

#### **Sensitive species**

Sensitive species are species that require special management consideration to avoid potential future listing under the ESA and that have been identified in accordance with procedures set forth in BLM Manual 6840.

The Golden eagle, peregrine falcon, Sonoran Desert tortoise (Desert Tortoise), and several bat species are designated as BLM sensitive species and occur or are likely to occur on the allotment. See Section 3.3.5.2.1 Environmental Consequences to Sensitive Species for effects to these species.

#### **3.3.5.1 Threatened or Endangered Species**

Under the ESA, Federal agencies shall ensure that any action authorized, funded, or carried out by such agencies is not likely to jeopardize the continued existence of any endangered or threatened species, or destroy/adversely modify designated critical habitat, and as such is responsible for making one of the following effects determinations: no effect; may effect, but not likely to adversely affect or; likely to adversely affect (USFWS 2014).

Guidance criteria for making determinations of effects to willow flycatcher from proposed livestock grazing was developed by a USFWS and BLM team and approved for use in Arizona BLM's Southwestern Willow flycatcher action plan (USDI BLM 1999). One criteria, based on cowbird parasitism, would result in a "likely to adversely affect" determination if cowbird parasitism is likely due to the presence of livestock within five miles of occupied habitat during breeding season.

The cowbird lays its eggs in the nests of other species. It removes one or more eggs from the nest and replaces them with its own. The eggs of the cowbird hatch sooner, the young grow faster, and are much larger and more demanding than those of the nesting bird. These young cowbirds then crowd out and starve the other hatchlings. Sometimes flycatchers will abandon their nests and start over, often too late in the season. Cowbird parasitism can greatly reduce the nesting success of the southwestern willow flycatcher (USFWS 2014b). Cowbirds are attracted to livestock and livestock concentration areas. The proposed livestock grazing would be within five miles of occupied habitat during the breeding season. Effects are discussed in the next section.

### **3.3.5.1.1 Environmental Consequences to Threatened or Endangered Species**

#### **Proposed Action**

**Southwestern Willow Flycatcher** - Implementation of the Proposed Action would have “no affect” to the willow flycatcher or to Critical Habitat for the following reasons:

There would be no threats to the Primary Constituent Elements (PCEs<sup>4</sup>), of the designated critical habitat as the BLM is not authorizing livestock grazing on public land in any area that supports the riparian habitat for the flycatcher.

Because BLM authorized livestock would not be grazing within the Critical Habitat area and grazing outside of Critical Habitat would be required to meet Arizona’s Standards for Rangeland Health, volume and composition of riparian vegetation would not be reduced, floodplain dynamics would not be altered and regeneration of riparian habitat would not be impaired or precluded. BLM authorized livestock grazing would not disturb nest sites, reduce the likelihood of suitable habitat to expand to the site’s potential, nor would BLM authorized livestock grazing to occur in potential habitats. Upland watershed health and soil characteristics of watersheds that empty into the Big Sandy River would not be altered and are expected to be maintained or improved with the implementation of the Proposed Action (BLM 2014).

Livestock use would occur on adjacent allotments within 5 miles of occupied habitat during the breeding season but livestock grazing on the Hot Springs Allotment would occur outside breeding season. Livestock would not be present in Critical Habitat at any time during the year as no critical habitat is found on the allotment. The presence of surrounding private lands and their attractiveness to cowbirds is out of the control of the BLM. The presence of irrigated pastures, croplands, private ranchlands, private homes, and businesses almost immediately adjacent to occupied habitats on private lands are likely to overwhelm any cowbird parasitism as a result of livestock grazing on the Hot Springs Allotment. The New Mexico study (Goguen and Mathews 1999) that demonstrated the attractiveness of livestock grazing to feeding cowbirds was done in a remote area away from other potential attractants.

---

<sup>4</sup> PCEs are specific elements of physical or biological features that provide for a species’ life-history processes and are essential to the conservation of the species (USFWS).

## **Yearlong Grazing Alternative**

**Southwestern Willow Flycatcher** – The Yearlong Grazing Alternative would have “no affect” to the willow flycatcher or to Critical Habitat for the same reasons as described in this section under the Proposed Action. Under this alternative livestock would be present during the willow flycatcher nesting season; however, the presence of irrigated pastures, croplands, private ranchlands, private homes, and businesses almost immediately adjacent to occupied habitats on private lands are likely to overwhelm any cowbird parasitism as a result of livestock grazing on the Hot Springs Allotment.

## **No Livestock Grazing Alternative**

**Southwestern Willow Flycatcher** – The No Livestock Grazing Alternative would have “no affect” to the willow flycatcher or to Critical Habitat for the following reasons:

There would be no threats to the PCEs of the designated critical habitat as the BLM is not authorizing livestock grazing on public land in any area that supports the riparian habitat for the flycatcher.

No livestock grazing would occur within the Critical Habitat area or in any potential habitat. Volume and composition of riparian vegetation would not be reduced, floodplain dynamics would not be altered and regeneration of riparian habitat would not be impaired or precluded. No nest sites would be disturbed by livestock grazing, and the likelihood of suitable habitat to expand to the site’s potential would not be affected. Upland watershed health and soil characteristics of watersheds on the Hot Springs Allotment that empty into the Big Sandy River would not be altered and are expected to be maintained or improved with the implementation of the No Livestock Grazing Alternative.

### **3.3.5.2 Sensitive Species**

The following species occur or are likely to occur on the allotment: The golden eagle, peregrine falcon, Desert tortoise, California leaf-nosed bat, cave myotis, spotted bat and the Townsend’s big-eared bat.

#### **3.3.5.2.1 Environmental Consequences to Sensitive Species**

### **Proposed Action**

**Golden Eagle and Peregrine Falcon** – Effects from this alternative are expected to be the same as described in Section 3.3.4.1 Environmental Consequences to Migratory Birds, Proposed Action. Livestock grazing is unlikely to affect the amount of available prey (rabbits and birds) for the golden eagle and peregrine falcon because habitat requirements of their prey would be expected to be met; therefore, the reproductive success of the prey would be maintained. Livestock grazing would not affect the nesting locations of these two species because their nests are found on inaccessible cliff faces and livestock would not be present during the nesting season.

### **Yearlong Grazing Alternative**

Effects are expected to be the same as described in Section 3.3.4.1, Environmental Consequences to Migratory Birds, Yearlong Grazing Alternative.

Effects from ephemeral grazing would be the same as discussed in Section 3.3.4.1, Environmental Consequences to Migratory Birds, Proposed Action.

### **No Livestock Grazing Alternative**

Effects from this alternative are expected to be the same as those described in Section 3.3.4.1, Environmental Consequences to Migratory Birds, No Livestock Grazing Alternative.

Effects from ephemeral grazing would be the same as described in Section 3.3.4.1 Environmental Consequences to Migratory Birds, Proposed Action.

**Bats** - The upland areas provide foraging habitat for bats however there are no known bat roosts located on the allotment. Roosting and/or foraging habitat for the California leaf-nosed bat, cave myotis, spotted bat and the Townsend's big-eared bat may occur on the allotment especially since this allotment is adjacent to the Big Sandy River where insect prey would be abundant.

### **Proposed Action**

Rest during the growing seasons will allow plants to fully seed providing sufficient seed production for seed eating species and residual forage for insects, which are important prey species to bats. Maintaining or improving key species productivity, cover, and meeting the DPC objectives would indirectly maintain the foraging habitat for insects thus indirectly maintain or improve foraging conditions for bats.

Livestock grazing would not affect the roosting sites of bats as bat roost in caves, large boulder cracks, trees, and in mines, all areas where livestock do not walk.

Effects from ephemeral grazing would be the same as discussed in Section 3.3.4.1, Environmental Consequences to Migratory Birds, Proposed Action.

### **Yearlong Grazing Alternative**

This alternative would allow for grazing to occur yearlong and would likely result in a gradual decline in the abundance, vigor and seed production of key forage species and eventually, the amount and kind of cover available to wildlife. A decline in key forage species may cause an indirect decline in the amount and types of insects that occur on the allotment and affect the insect forage base available to bats.

Effects from ephemeral grazing would be the same as discussed in Section 3.3.4.1, Environmental Consequences to Migratory Birds, Proposed Action.

### **No Livestock Grazing Alternative**

Effects from this alternative are expected to be the same as those described in Section 3.3.4.1 Environmental Consequences to Migratory Birds, No Livestock Grazing Alternative.

**Desert Tortoise** - The lower elevation of the allotment is designated as Category III Desert Tortoise habitat (Kingman RMP, 1995). A map showing the extent of Category III Desert Tortoise habitat is found in the Evaluation (Appendix A, Figure 2). In December 2010, the USFWS determined that the Sonoran Desert Tortoise warranted protection under the Endangered Species Act however, the listing was precluded due to the need to list higher priority species. Therefore, the Desert Tortoise has been designated by the USFWS as a Candidate species. The status of candidate species is reviewed annually by the USFWS to determine if listing under the Endangered Species Act is warranted or to determine if listing is no longer needed.

### **Proposed Action**

The Proposed Action helps to implement the BLM 1988, Desert Tortoise Rangewide Plan. The Rangewide Plan Objective No. 10 gives the following guidance: "... ensure that livestock use is consistent with Category (tortoise) Goals, Objectives, and Management Actions of this Rangewide Plan". Prior to the Desert Tortoise becoming a candidate species, the BLM treated Desert Tortoise as a special status species due to its status conferred by the State of Arizona and due to the guidance provided by the Rangewide Plan (BLM 1988) which directs BLM to give special management consideration for the Desert Tortoise. This plan has been implemented throughout the Kingman Field Office including on the Hot Springs Allotment since 1988. Management of the Desert Tortoise and Desert Tortoise habitat on the allotment will continue in the manner directed by the Rangewide Plan. The proposed livestock management changes would allow adequate and suitable native forage, space, and cover to be available to Desert Tortoises throughout the year and to maintain or increase the productivity of native plants required by Desert Tortoises.

Implementation of this alternative would eliminate any competition for forage between livestock and Desert Tortoise during the Desert Tortoise active season which is the spring and summer months because no livestock grazing would occur during these months. This alternative is expected to continue to allow the vegetative community to meet the Standards for Rangeland Health which would allow for enough forage and quality forage to be left over after livestock grazing, for the Desert Tortoise.

Desert Tortoise would not be in danger of crushing by cattle as cattle would only be present when Desert Tortoise are hibernating and underground. Burrows can also be crushed by cattle but this is unlikely within Desert Tortoise habitat because the majority of the burrows are under rocks in steep boulder-strewn habitat or in the cut banks of incised desert washes, where cattle are not likely to graze.

Effects from ephemeral grazing would be the same as discussed in Section 3.3.4.1, Environmental Consequences to Migratory Birds, Proposed Action.

### **Yearlong Grazing Alternative**

This alternative would allow for grazing to occur yearlong which includes the spring and summer growing seasons and during the Desert Tortoise active seasons. A gradual decline in the abundance and vigor of key forage species (See Section 3.3.6.1 Environmental Consequences to Vegetation, Yearlong Grazing Alternative.) could affect the cover available to Desert Tortoise. Because cattle would be present during the Desert Tortoise active seasons, there is potential that trampling of Desert Tortoise by livestock could occur. Desert Tortoise can be crushed by cattle however no data exist on the frequency at which cattle trample Desert Tortoise. Cattle likely pose a low degree of risk to adult Desert Tortoise and possibly sub-adults above ground, simply because cattle would likely try to avoid stepping on what essentially would appear to them to be a rock (Boarman 2002). The risk of crushing by cattle would be higher for hatchlings and small juvenile Desert Tortoise. Avery and Neibergs 1997, found that more burrows of Desert Tortoise were partially or completely destroyed in areas that were grazed by cattle than in an area fenced to exclude livestock. In the rocky habitat of the Hot Springs Allotment, the majority of burrows would be in drainage cutbanks or under boulders and, therefore, unlikely to be crushed because cattle do not graze in these areas.

Effects from ephemeral grazing would be the same as discussed in 3.3.4.1, Environmental Consequences to Migratory Birds, Proposed Action.

### **No Livestock Grazing Alternative**

Any potential forage competition between livestock and Desert Tortoise would be eliminated under this alternative. Otherwise effects from the No Livestock Grazing Alternative are expected to be similar to those described in this section for the Proposed Action however any improvement in range condition (wildlife habitat) is expected to occur more quickly under this alternative than under the Proposed Action.

Ephemeral grazing would not occur under this alternative and therefore, all ephemeral forage would remain available to the Desert Tortoise and other wildlife species.

## **3.3.6 Vegetation**

The vegetative community is Sonoran-Mohave Desert Transition. Vegetation includes flat-top buckwheat, saguaro, creosotebush, white brittle bush, white bursage, paloverde, velvet mesquite, catclaw acacia, ocotillo, Mormon tea, Mojave thorn, snakeweed, big galleta, black grama, cholla, ratany, and banana yucca.

### **3.3.6.1 Environmental Consequences to Vegetation**

#### **Proposed Action**

This alternative would renew the permit without changes to livestock numbers or season-of-use (Section 2.3 Proposed Action). Grazing is one of several environmental stressors that can affect rangeland plants. Drought, wildfire, invasive species, insects and disease may also affect plants. Vegetative communities, particularly forage species, benefit from rest from grazing. Absent livestock grazing, utilization of plants by wildlife will still occur but would be greatly reduced, allowing forage species greater opportunity for reproductive success and increased ability to

withstand the other environmental stressors. “By allowing important forage plants to grow unhindered during the period most favorable for their growth, they are enabled to produce a greater quantity of seed. Nearly equal advantages result from deferring grazing on plants that reproduce vegetatively.” (Stoddart, Smith and Box, 1975). Spring and summer are the time periods for forage plants when the majority of growth occurs. Deferring grazing gives forage plants a better opportunity to maintain and gain vigor than does continuous grazing especially within mountainous terrain (Holechek et al. 2001).

Currently, the permit terms and conditions have allowed Arizona Standards for Rangeland Health to be met, as indicated by the Evaluation completed in August, 2011 (BLM 2011). Composition objectives for key forage species of big galleta and saltbush were achieved as was the perennial plant ground cover objective. Therefore, it would be expected that standards and objectives would continue to be met under the Proposed Action and current rangeland condition would be maintained or improved.

Effects to vegetation from ephemeral grazing would be expected to be minor. See Section 3.3.1.1 Environmental Consequences to Invasive, Non-Native Plant Species, Proposed Action for more discussion.

### **Yearlong Grazing Alternative**

Effects from this alternative would be expected to be greater than with the other alternatives. Because this alternative does not allow rest for vegetative communities from livestock grazing at any time during the year, it would be expected to result in a gradual decline in abundance and vigor of forage species. If abundance and vigor of forage species are reduced, these species are less able to withstand the other environmental stressors and may eventually be eliminated from the area. It is expected that after several years the desired plant community objectives may not be met under this alternative.

Effects to vegetation from ephemeral grazing would be the same as discussed in Section 3.3.1.1 Environmental Consequences to Invasive, Non-Native Plant Species, Proposed Action.

### **No Livestock Grazing Alternative**

The No Livestock Grazing Alternative would be expected to allow standards and objectives to be met and to result in improvement of rangeland condition. With the complete absence of livestock, utilization of plants would be greatly reduced year-round, allowing plants greater opportunity for reproductive success than with the other alternatives. Any improvement to rangeland condition would be expected to occur more quickly than with the other alternatives.

### **3.3.7 Wildlife**

The Hot Springs Allotment provides habitat for various wildlife species common to the Mohave-Sonoran Desert Scrub Mix plant communities. Big game species include desert mule deer, javelina and mountain lion. Small game and fur-bearing species include the desert cottontail, striped skunk, and bobcat. Upland game bird species include the Gambel’s quail, white-winged



and mourning dove. Typical non-game species that occur on the allotment are the western diamondback rattlesnake, collared lizard, coyote, black-tailed jackrabbit, cactus mouse, and the white-throated woodrat.

### **3.3.7.1 Environmental Consequences to Wildlife**

#### **Proposed Action**

Effects to wildlife from this alternative would be the same as described in Section 3.3.4.1 Environmental Consequences to Migratory Birds, Proposed Action.

#### **Yearlong Grazing Alternative**

Effects to wildlife from this alternative would be the same as described in Section 3.3.4.1 Environmental Consequences to Migratory Birds, Yearlong Grazing Alternative.

Effects from ephemeral grazing would be the same as discussed in Section 3.3.4.1 Environmental Consequences, Proposed Action.

#### **No Livestock Grazing Alternative**

Effects to wildlife from this alternative are expected to be the same as those described in Section 3.3.4.1 Environmental Consequences to Migratory Birds, No Livestock Grazing Alternative.

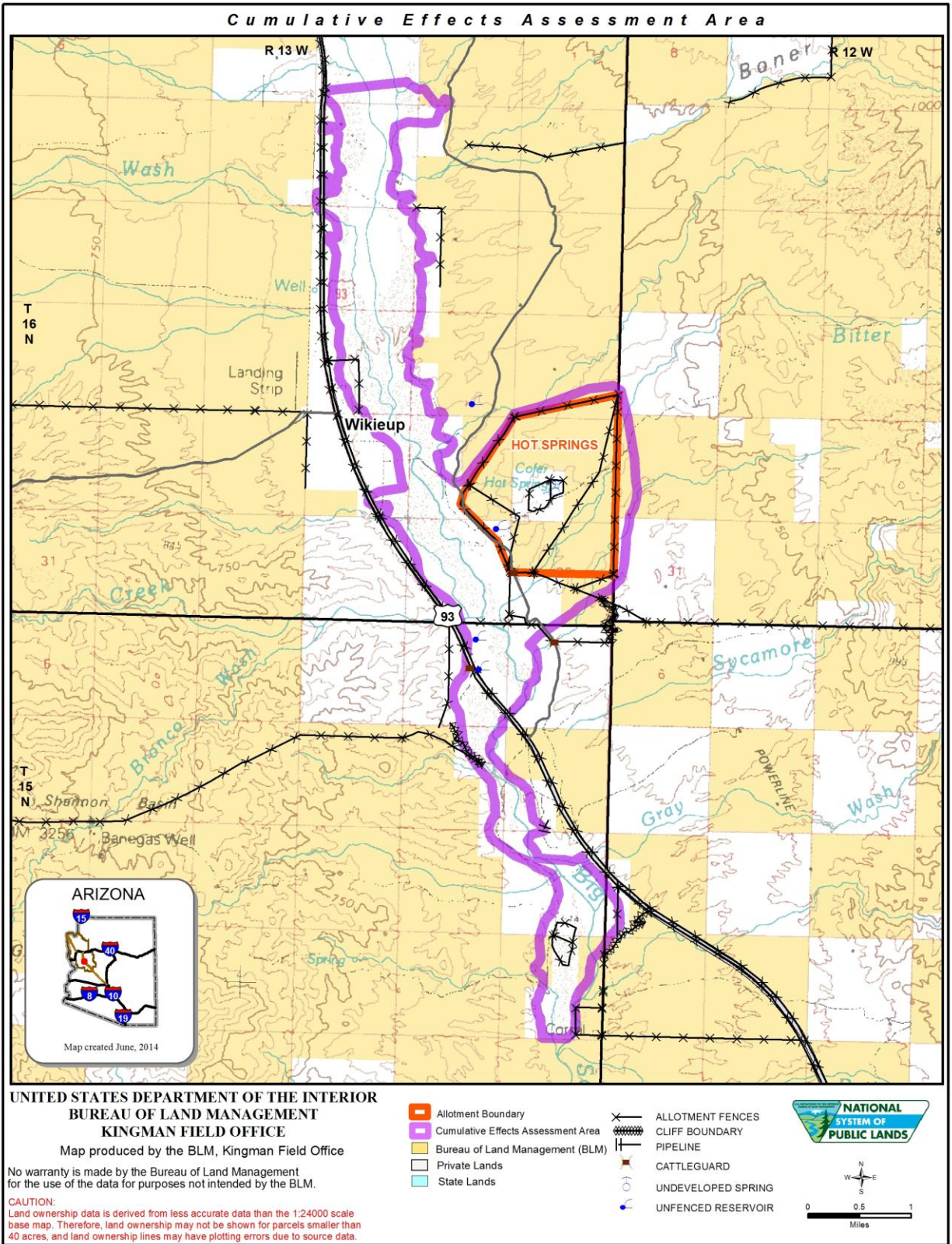
## **3.4 Cumulative Effects**

Cumulative effects are those effects resulting “...from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR 1508.7).

Cumulative effects were analyzed in the Kingman RMP/Final EIS (BLM 1995) to which this analysis is tiered. All resource values addressed in this chapter have been evaluated for cumulative effects. Inter-related resources with similar effects have been grouped together for the cumulative impact analysis.

If there is no net effect to a particular resource from an action, then there is no potential for cumulative effects. The action alternatives encompass a 10-year time period; therefore, that timeframe was selected for analysis.

The cumulative effects assessment area for potential effects to soils, vegetation and wildlife extends beyond the allotment boundary. The allotment is situated between two minor drainages to the northwest and southeast, with the Big Sandy River to the southwest. Potential effects to vegetation, and subsequently soils, could result in soil movement that would be expected to occur within the allotment’s small watershed (1,267 acres). The area of potential effects to wildlife, candidate species, and BLM Sensitive species would be expected to be the same and includes critical habitat for willow flycatcher along the Big Sandy River. See Figure 2: Cumulative Effects Assessment Area.



**Figure 3: Cumulative Effects Assessment Area**

### 3.4.1 Past and Present Actions

On the basis of aerial photographic data, agency records and Geographic Information System (GIS) analysis, the following past and present actions, which have impacted the assessment area to varying degrees, have been identified: agriculture, borrow pits, ROWs and recreation.

**Agriculture** – Cattle grazing and crop growing have been the primary agricultural uses of the assessment area. In the center of the allotment on fenced private lands, approximately 4 acres has been used and is currently in use to grow palm trees. The 4 acres of palm tree agriculture has added to effects to the willow flycatcher. See the discussion about effects to willow flycatcher in Section 3.3.5.1.1 Environmental Consequences to Threatened or Endangered Species.

**Recreation** – Off-highway-vehicle (OHV) use is evident by the presence of several dirt roads throughout the allotment. Roads can affect precipitation run-off and may lead to increased soil movement. Vehicular travel can disturb soil and vegetation, increasing the opportunity for the establishment and spread of invasive, non-native plant species.

**ROWs** - Electrical lines have been constructed in the northern part of the allotment. The disturbance path across the assessment area is approximately 1 mile long by 40 yards wide. The installation and maintenance of these lines has resulted in ground disturbance and long term effects to vegetation. Vehicular travel along the electrical lines by maintenance crews and OHVs prevents recovery of vegetation to pre-disturbance condition.

**Borrow pits** – Approximately 2 acres have been and are currently used as a source of gravel and sand. The area is devoid of vegetation and is therefore more vulnerable to soil movement and infestation of invasive, non-native plant species.

Guidance issued by the Council on Environmental Quality on June 24, 2005, points out that review of past actions is required only to the extent that this review informs agency decision-making regarding the alternatives. The guidance states, “agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.” This is because a description of the current state of the environment inherently includes the effects of past actions.

### 3.4.2 Reasonably Foreseeable Actions

Because the effects of the Proposed Action and Alternatives are expected to last ten years, this time frame is considered to be most appropriate for considering the incremental effect of reasonably foreseeable actions. The past and present actions discussed above are expected to persist for ten more years. Continuation of these activities in the future would result in effects similar to those that have resulted from past activities.

**Agriculture** – Cattle grazing would continue under the Proposed Action or under the Yearlong Grazing Alternative. It is expected that the private property would continue to be used for agricultural purposes.

**Recreation** – OHV use may increase as a result of population growth in the areas that surround the assessment area. Recreation activities, such as OHV use, would likely continue and/or increase over time.

**Wildfire** - While wildfire has not occurred in the assessment area within the past 10 years, it is possible that it could occur within the next 10 years. In the event of wildfire, effects from suppression activities such as the construction of dozer lines, cross-country travel of engines, backburning, and retardant drops are reasonably foreseeable.

**ROWS** – Vehicular travel along the electrical lines by maintenance crews and OHVs is expected to continue and will likely prevent the recovery of vegetation to pre-disturbance condition.

**Borrow Pits** – The borrow pits will continue to be used for the removal of sand and gravel product. Vegetation is not expected to reestablish in the next 10 years.

**Climate Change** - Rangeland and livestock ecosystems are complex, with numerous interactions among the system's living and non-living components. Consequently, the effects of a changing climate will have direct and indirect effects at varying spatial and temporal scales. Climatic changes such as increased atmospheric concentration of CO<sub>2</sub>, changes in temperature, and changes in precipitation patterns have the potential to affect rangeland ecosystems in the following ways: 1) changes in decomposition rates; 2) changes in aboveground net primary production; 3) shifts in grassland species; 4) changes in evapotranspiration and runoff; and 5) changes in forage quality (Ojima et al. 1991; Breymeyer et al. 1996; IPCC 1996, IPCC 2007). The effects that these changes may have on livestock grazing in the allotment as well as the contribution that such grazing may have to climate change are currently unknown.

### **3.4.3 Analysis of Cumulative Effects**

#### **3.4.3.1 Invasive, Non-Native Plant Species**

##### **Effects from Past and Present Actions**

Ground disturbances associated with past and present actions (section 3.4.1 Past and Present Actions) have given invasive, non-native plant species better opportunity to establish and spread.

##### **Effects from Reasonably Foreseeable Actions**

Effects from past and present ground disturbing activities would likely continue. There may be an increase in OHV activity if the population surrounding the cumulative assessment area increases. Increased OHV use could affect soil and vegetative communities through ground disturbance and may have detrimental effects to natural plant communities, which may lead to soil erosion, particularly if off-trail use occurs.

Wildfires are common in northern Arizona and have the potential to convert native range to non-native species. Upland areas may be susceptible to erosion following wildfire in a watershed which could lead to proliferation of invasive weeds in these areas. Fire Emergency Stabilization



and Rehabilitation efforts would be undertaken to help prevent the conversion of native range to non-native species. Emergency Stabilization and Rehabilitation efforts may vary in degrees of success, but when successful should help control the spread of invasive, annual species. Under the Proposed Action, KFO would continue to monitor the allotment for the presence of invasive weeds. Maintenance and improvement in the condition of vegetation from improved grazing practices and implementation of best management practices from activities that are permitted or authorized by the BLM would likely maintain or make areas more resilient to infestation by invasive, non-native plant species.

## **Cumulative Effects**

### **Proposed Action**

Maintenance or improvement of native plant communities would be anticipated under the Proposed Action. Livestock grazing would likely continue to contribute to the establishment and spread of invasive, non-native plant species but the contribution would likely be minimal throughout a vast majority of the allotment (See Section 3.3.1.1 Environmental Consequences to Invasive, Non-native Plant Species, Proposed Action.). Areas of livestock concentration may be more vulnerable to the establishment of invasive, non-native plant species.

### **Yearlong Grazing Alternative**

Yearlong grazing would be expected to result in a greater contribution to the establishment and spread of invasive, non-native plant species. Because this alternative does not allow rest for vegetative communities from livestock grazing at any time during the year, it may result in a gradual decline in abundance and vigor of forage species. This situation would provide greater opportunity for establishment and spread of invasive, non-native plant species and would make it easier for those already established to persist. This alternative combined with the other past and present actions would be expected to result in the greater opportunity for invasive, non-native plant species to establish and spread when compared to the Proposed Action.

### **No Livestock Grazing Alternative**

Gradual improvement of native plant communities would be expected with this alternative, allowing plant communities to be more resilient to infestation by invasive, non-native plant species from other ground disturbing activities.

## **3.4.3.2 Socioeconomics**

### **Effects from Past and Present Actions**

The local economy near Wikieup has likely been affected by agriculture, recreation, utilities installation and the use of borrow pits within the grazing allotment. The allotment is relatively small at approximately 1,267 acres; therefore, these activities have been small-scale with minor effects to the economy.

### **Effects from Reasonably Foreseeable Actions**

There will likely be a continuation of effects over the next ten years as described in Section 3.4.1 Past and Present Actions. A slight increase in recreation may occur if the area experiences population growth but the increase would not be expected to affect the economy measurably.

### **Cumulative Effect**

As discussed in Section 3.3.2.1 Environmental Consequences to Socioeconomics, the grazing permit is relatively small and the effect to social values, the local economy and the permittee from the Proposed Action and Alternatives would be expected to be minor and add very slightly to the cumulative effects.

### **3.4.3.3 Soils and Vegetation**

#### **Effects from Past and Present Actions**

Vegetation and soils have been affected by agriculture, OHV use, ROWs and borrow pit use. Effects to vegetation from OHV use (roads/trails), ROWs and borrow pit use have been in concentrated areas. Effects from livestock grazing have been widespread and less obvious. Some actions such as OHV use, ROWs and borrow pit use, result in direct soil disturbance while livestock grazing can result in indirect soil disturbance if vegetative communities become altered to the extent that soils are no longer adequately protected from erosion. The Evaluation concluded that Standard 1 for soils and Standard 3 for upland plant communities were achieved at the key, area and it is, therefore, presumed that the allotment, as a whole, is also achieving both standards. That is not to say that past and present actions have not affected soils and vegetation.

#### **Effects from Reasonably Foreseeable Actions**

It is expected that activities from past and present actions will continue into the next 10 years at the current levels. There may be a slight increase if the Wikieup area population increases. Effects would be the same as described in Section 3.4.1 from Past and Present Actions.

### **Cumulative Effect**

#### **Proposed Action**

Effects from past, present and future actions would continue. Livestock grazing under the Proposed Action is not expected to add to the cumulative effect and may lessen the cumulative effect if rangeland conditions improve.

#### **Yearlong Grazing Alternative**

Effects from past, present and future actions would continue. Livestock grazing under this alternative would be expected to result in a gradual decline in rangeland condition and would add to the cumulative effects.

## **No Livestock Grazing Alternative**

Effects from all past, present and future actions, except livestock grazing would continue. The absence of livestock grazing would be expected to result in improvement to rangeland condition and would therefore lessen cumulative impacts.

### **3.4.3.4 Migratory Birds, Special Status Species and other Wildlife**

#### **Effects from Past and Present Actions**

Effects to special status species and other wildlife from past and present actions would continue as described in Sections 3.4.1 Past and Present Actions.

Urban development, agriculture, and recreation associated with past and present actions (Section 3.4.1 Past and Present Actions) may have affected the PCEs of the willow flycatcher by altering the riparian community and floodplains that supports Critical Habitat for the willow flycatcher on private lands. Agriculture on private lands, and urban development may support cowbirds that parasitize flycatcher nests.

#### **Effects from Reasonably Foreseeable Actions**

Urban development, agriculture, and recreation are expected to continue into the future with effects being the same as described in Section 3.4.3.3 Effects from Past and Present Actions. Future wildfires have the potential to alter wildlife habitat affecting forage, cover and nesting components. An increase in OHV activity on private and public land may increase if population growth continues resulting in effects described in Section 3.4.1 Past and Present Actions. This could also indirectly affect the soil and vegetation causing soil erosion, downstream sedimentation and excessive runoff which can cause an increase in the frequency and intensity of flooding and subsequent alteration of Critical Habitat.

#### **Cumulative Effect**

#### **Proposed Action**

Effects from past, present and future actions as described in Sections 3.4.1 Past and Present Actions and 3.4.2 Reasonably Foreseeable Actions would continue. Maintenance or improvement of native plant communities is anticipated under the Proposed Action. Forage for wildlife would continue to annually be removed by livestock, however, it is expected that adequate forage would be left every year to meet these species needs. Livestock grazing under the Proposed Action is not expected to add measurable to the cumulative effects to wildlife.

## **Yearlong Grazing Alternative**

Effects from all past, present and future actions would continue (Sections 3.4.1 Past and Present Actions and 3.4.2 Reasonably Foreseeable Actions). Maintenance or improvement of native plant



communities is not expected under this alternative. This could cumulatively affect the amount and abundance of key forage plants (See Section 3.3.6.1 Environmental Consequences to Vegetation, Yearlong Grazing Alternative.) available to wildlife on the allotment. This could affect them directly or indirectly over the next ten years. Yearlong livestock grazing would also add to the potential cumulative effect of the crushing of young Desert Tortoises. However, livestock grazing on public lands is not expected to add to the cumulative effects to the willow flycatcher.

## **No Livestock Grazing Alternative**

Effects from all past, present and future actions as described in Sections 3.4.1 Past and Present Actions and 3.4.2 Reasonably Foreseeable Actions would continue. The absence of livestock grazing on the public land is expected to result in an improvement to rangeland condition and would therefore lessen the cumulative impacts of forage competition to wildlife. There would be no potential of crushing young Desert Tortoises by livestock.

## **4 LIST OF PREPARERS**

Chad Benson	Wild Horse and Burro Specialist
Celeste Mimnaugh	Rangeland Management Specialist
Donald McClure	Assistant Field Manager, Resources
Sally Olivieri	GIS Specialist
Rebecca Peck	Wildlife Biologist
Karen Reichhardt	Grazing Strike Team Leader
Timothy Watkins	Archaeologist

## **5 REFERENCES, ACRONYMS**

### **References**

Avery, H.W. and Neibergs, A.G. 1997. Effects of cattle grazing on the desert tortoise, *Gopherus agassizii*: nutritional and behavioral interactions. Proceedings: Conservation, Restoration, and Management of Tortoises and Turtles – an International Conference. New York Turtle and Tortoise Society, pp. 13-20.

Boarman, W.I. 2002. Threats to desert tortoise populations: a critical review of the literature. Unpubl. Report, prepared for the West Mojave Planning Team and the Bureau of Land Management. 86 pp.

Breymeyer, A.I., D.O. Hall, J.M. Melillo, and G.I. Ågren (eds). 1996. Global Change: Effects on Coniferous Forests and Grasslands. Scientific Committee on Problems of the Environment 56, John Wiley & Sons, Winchester, United Kingdom.

Goguen, C.B. and N.E. Mathews. 1999. Review of the causes and implications of the association between cowbirds and livestock. Pp.10-17, *In*: Research and Management of the Brown-headed Cowbird in Western Landscapes, M.L.Morrison, L.S. Hall, S.K. Robinson, S.I. Rothstein, D.C.

Hahn and T.R. Rich, eds. Studies in Avian Biology No.18.

Holechek, J.L., R.D. Pieper, and C. H. Herbel. 2001. Range Management: Principles and Practices., 4<sup>th</sup> ed. "Selection of Grazing Methods", p. 257-259. Prentice-Hall, Inc., Upper Saddle River, New Jersey.

Intergovernmental Panel on Climate Change (IPCC). 1996. Climate Change 1995. Impacts, Adaptations, and Mitigation of Climate Change: Scientific-Technical Analyses. Contribution of Working Group II to the Second Assessment Report of the Intergovernmental Panel on Climate Change. R.T. Watson, M.C. Zinyowera, R.H. Moss (eds). Cambridge University Press, Cambridge.

Ojima, D.S., T.G.F. Kittel, T. Rosswall, and B.H. Walker. 1991. Critical issues for understanding global change effects on terrestrial ecosystems. *Ecological Applications* 3: 316-325.

Paradzick, C. E., R. F. Davidson, J. W. Rourke, M. W. Sumner, A. M. Wartell, and T. D. McCarthey. 2000. Southwestern willow flycatcher 1999 survey and nest monitoring report. Nongame and Endangered Wildlife Program Technical Report 151. Arizona Game and Fish Department, Phoenix, Arizona.

Stoddart, L.A., A.D. Smith., and T.W. Box. 1975. Range Management 3rd ed., "Planning Grazing Use of the Range," p. 291. McGraw-Hill Book Company, New York.

U.S. Department of Agriculture Natural Resources Conservation Service. 2006. Soil Survey of Mohave County, Arizona, Southern Part, 2006.

U.S. Department of the Interior Bureau of Land Management. 1981. Hualapai/Aquarius Grazing Environmental Impact Statement.

U.S. Department of the Interior Bureau of Land Management. 1981. Kingman Resource Area

U.S. Department of the Interior Bureau of Land Management. 1988. Desert Tortoise Habitat Management on the Public Lands: A Rangewide Plan.

U.S. Department of the Interior Bureau of Land Management. 1995 Kingman Resource Area Proposed Management Plan (Kingman RMP)/Final Environmental Statement.

U.S. Department of the Interior Bureau of Land Management. 1997. Arizona Standards for Rangeland Health and Guidelines for Livestock Grazing Management.

U.S. Department of the Interior Bureau of Land Management. 1999. Southwestern willow flycatcher action plan. Bureau of Land Management – Arizona. Unpubl. Document.

U.S. Department of the Interior Bureau of Land Management. 2008. Those elements of the human environment that are subject to the requirements specified in statute, regulation, or executive order, and must be considered in all EAs.

U.S. Department of the Interior, Bureau of Land Management. 2008b. National Environmental Policy Act. BLM Handbook H-1790-1. Bureau of Land Management, Washington D.C.

U.S. Department of the Interior, Bureau of Land Management. 2008c. Special Status Species Management Manual. BLM Manual 6840.

U.S. Department of the Interior Bureau of Land Management 2011. Draft Evaluation of Rangeland Health, Hot Springs Allotment, August 2, 201, Kingman Field Office, Kingman, Arizona.

U.S. Department of the Interior Bureau of Land Management. 2012 Memorandum of Understanding (MOU) with the Hualapai Tribe

U.S. Department of the Interior Bureau of Land Management. 2014. Biological Evaluation for Threatened and Endangered Species, Hot Springs Allotment, Mohave County, Kingman, Arizona.

U.S. Fish and Wildlife Service 2005. Federal Register Notice, October 19, 2005. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Southwestern Willow Flycatcher (*Empidonax traillii extimus*). Federal Register 70: 60885- 61009.

U.S. Fish and Wildlife Service 2014. Endangered Species Act – section 7. Accessed June 30, 2014. <http://www.fws.gov/endangered/laws-policies/section-7.html>.

U.S. Fish and Wildlife Service 2014b. Southwestern Willow Flycatcher. Accessed June 26, 2014. [http://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/SWWF/CH\\_Final\\_Oct05/SWF%20Fact%20Sheet%20V3.pdf](http://www.fws.gov/southwest/es/arizona/Documents/SpeciesDocs/SWWF/CH_Final_Oct05/SWF%20Fact%20Sheet%20V3.pdf)

### **Acronyms and Abbreviations used in this EA**

AGFD	Arizona Game and Fish Department
AUM	Animal Unit Month
BLM	Bureau of Land Management
CCC	Consultation, Coordination, Cooperation
DPC	Desired Plant Community
EA	Environmental Assessment
EIS	Environmental Impact Statement
FLPMA	Federal Land Policy and Management Act
GIS	Geographic Information System
HDNR	Hualapai Department of Natural Resources
HMA	Herd Management Area
KFO	Kingman Field Office
MBTA	Migratory Bird Treaty Act
MLRA	Major Land Resource Area

MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
OHV	Off-Highway Vehicle
PCEs	Primary Constituent Elements
ROWs	Rights-of-Way
RMP	Resource Management Plan
TGA	Taylor Grazing Act
USFWS	United States Fish and Wildlife Service

## 6 APPENDICES

### **Appendix A – Hot Springs Allotment Evaluation of Rangeland Health, dated August 2, 2011.**



#### **DRAFT EVALUATION OF RANGELAND HEALTH**

Hot Springs Allotment

August 2, 2011

U.S. Department of the Interior  
Bureau of Land Management  
Kingman Field Office  
2755 Mission Blvd  
Kingman, AZ 86401  
Phone: 928-718-3700  
FAX: 928-718-3761



## **I. INTRODUCTION**

This evaluation was prepared in response to an application for grazing on the Hot Springs allotment. The purpose of the evaluation is to determine:

- 1) if current resource conditions are meeting, not meeting, or making progress towards meeting Arizona Standards for Rangeland Health,
- 2) if existing terms and conditions are valid, and
- 3) if changes to terms and conditions or management are warranted.

This evaluation follows the guidance provided in the Implementation Plan for AS&G (Bureau of Land Management [BLM] 1999) and the Kingman Resource Management Plan (RMP), and is done in cooperation, coordination, and consultation with the Arizona Game and Fish Department, the permittee, and interested publics.

Background:

- 1981 BLM issued Hualapai-Aquarius Environmental Impact Statement.
- 1995 BLM issued the Kingman Resource Area Proposed Resource Management Plan and Final Environmental Impact Statement. The RMP incorporated the Hualapai-Aquarius EIS for grazing management.
- 1996 BLM conducted a Statewide Land Use Plan Conformance Review and determined that the RMP would not impede AS&G implementation.
- 1997 BLM amended the RMP by incorporating the AS&G's into the RMP for grazing administration.
- 1999 the Arizona State Director issued the Instruction Memorandum No. AZ-99-012, titled Plan for Implementing Arizona Standards for Rangeland Health and Guidelines for Grazing Administration.

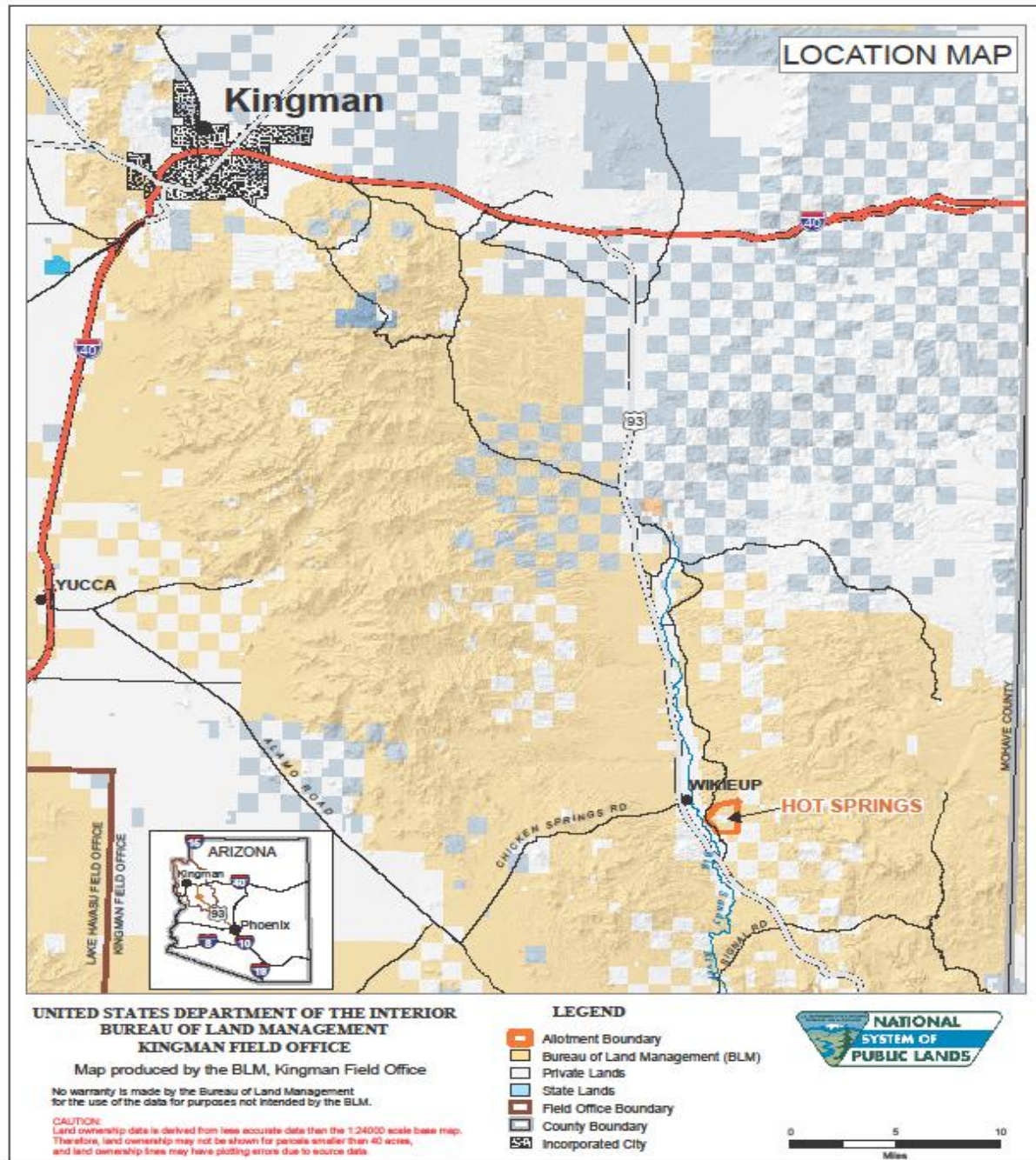
## **II. ALLOTMENT PROFILE**

### **A. Location and setting**

The Hot Springs allotment is a perennial/ephemeral allotment located about 42 miles southeast of Kingman and 3 miles southeast of Wikieup, Arizona (Figure 1). This allotment lies on the west side of the Aquarius Mountains.



**Figure 1.** Location of allotment





## B. Grazing Use and Management

The Hot Springs allotment is in the custodial category. Table 1 shows season of use on public land acres and table 2 shows actual use.

### Current Grazing System

1. The permittee, (Hualapai Tribe) is operating under authorization number 0202049 and uses the current management on the Hot Springs allotment:

**March 1-3** - 20 Animal Units (AUs) are grazed within the allotment.

**Jan 15-Feb 28** - 20 Animal Units (AUs) are grazed within the allotment.

**Table 1.** Permitted use in Animal Unit Months (AUMs).

Allotment Number	Allotment Name	Livestock Number	Livestock Kind	Begin	End	Percent Public Land	Type Use	AUMS
<b>Operator Auth # - 0202049</b>								
00046	Hot Springs	20	Cattle	3/1	3/3	100	Custodial	2
		20	Cattle	12/15	2/28	100	Custodial	50

**Table 2.** Actual Use

Year	Livestock Number	Livestock Kind	Begin	End	Percent Public Land	AUMS
*2002	5	Cattle	1/1	3/31	100	15
2003	20	Cattle	12/15	3/3	100	52
2004	20	Cattle	12/15	3/3	100	52
2005	0	Cattle	n/a	n/a	100	0
2006	0	Cattle	n/a	n/a	100	0
2007	0	Cattle	n/a	n/a	100	0
2008	15	Cattle	12/15	3/3	100	38
2009	20	Cattle	12/15	3/3	100	52
2010	20	Cattle	3/1	3/3	100	52
2011	0	Cattle	0	0	100	0

**\*Transition from yearlong grazing to split season of use in permit.**

## C. Natural Resources Description

### 1. Soils and Ecological Sites

Four (4) soil mapping units have been delineated within the Hot Springs allotment according to

the NRCS Soil Survey of Mohave County, Arizona, Southern Part, 2006. These soils occur in Major Land Resource Area (MLRA) 40-Sonoran Basin and Range and are located within Soil Survey Area 627 (Table 3).

**Table 3.** The four dominant ecological sites by soil map number and acreage.

Ecological Site	MLRA 40 Soil Map Units	Acreage	% of total
Loamy Breaks 7-10" p.z.	120	433	35
Sandy Bottom 7-10" p.z.	70	77	6
Loamy Bottom 7-10" p.z.	47	59	4
Limy Upland 7-10" p.z.	16	703	55
Soil Map Units and MLRA number are provided for use when accessing the soil information on the NRCS website.			

**2. Riparian habitat** – no riparian areas exist on the allotment on public land.

### **3. Biological Description**

The vegetative community is Sonoran-Mohave Desert Transition. Vegetation here includes flat-top buckwheat, saguaro, creosote, brittle bush, white bursage, palo verde, mesquite, catclaw, ocotillo, Mormon tea, Mojave thorn, snakeweed, big galleta, black grama, cholla, ratany, and banana yucca.

### **4. Noxious and Invasive Plants**

Red Brome is a winter annual grass that is self pollinating and produces large numbers of viable seeds spread by wind, water, animals and humans. Red brome readily establishes in disturbed sites but has also shown the ability to establish in undisturbed landscapes. Red brome occurs throughout the allotment but its abundance is largely dependent on weather. Red brome is common throughout Mohave County.

### **5. Wildlife Habitat**

#### **Overview**

The Hot Springs allotment provides habitat for a variety of wildlife common to the Sonoran desert plant communities. Big game species may include an occasional mule deer, mountain lion, or javelina. Small game and furbearing species include desert cottontail, black-tailed jack rabbit, bobcat, gray fox, coyote, raccoon, skunks (spotted and striped), and badger. Upland game species include Gambel's quail, white-winged and mourning doves. Typical nongame species include western diamondback and Mojave rattlesnake, gopher snake, common king snake, collared lizard, Harris' antelope squirrel, rock squirrel, wood rat, kangaroo rat, and desert pocket mouse.

#### **Migratory Birds**

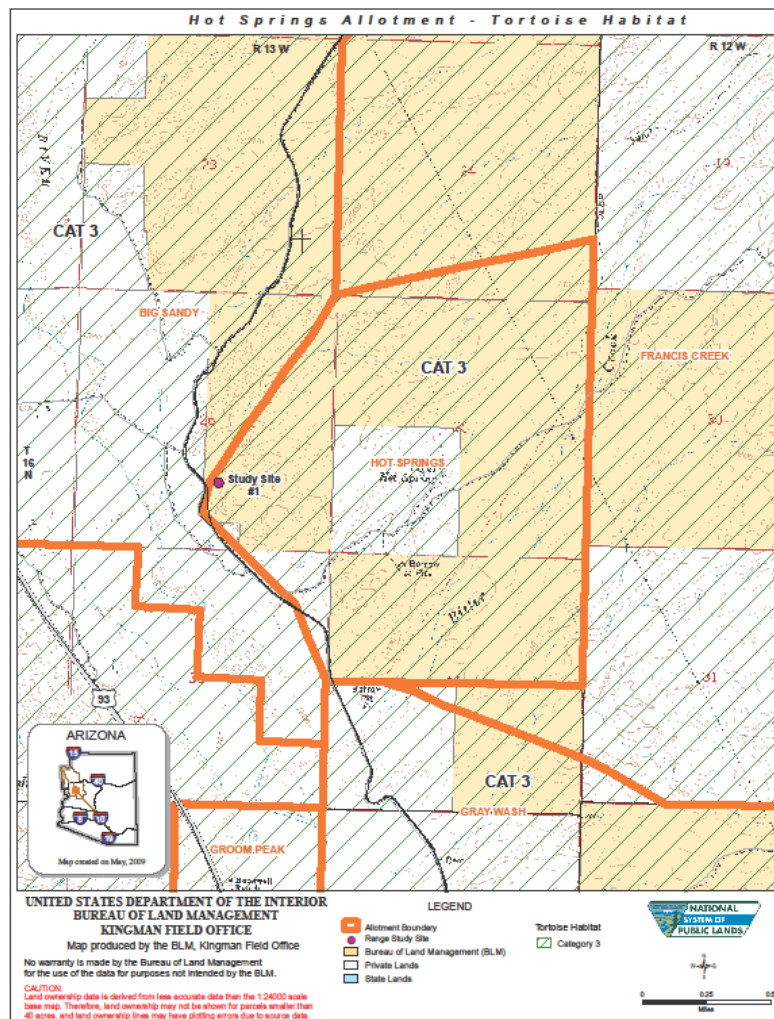
Migratory birds may nest and forage within the Hot Springs allotment. Migratory birds that could be found on the allotment include the black-throated sparrow, northern cardinal, curved-billed thrasher, red tailed hawk, American kestrel, prairie falcon, great horned owl, turkey vulture, northern harrier, and other species. Some of these species will remain on the allotment year-round even though they are typically migratory birds.

Threatened and Endangered Species - There are no threatened or endangered species that occur on this allotment.

#### Candidate Species

Desert Tortoise: Category III tortoise habitat occurs throughout this allotment (Figure 2) (see BLM 1995 for category definitions). In December 2010 the desert tortoise was designated as a Candidate species by the Fish and Wildlife Service meaning that it merits protection from the Endangered Species Act but won't be listed until other higher priority species have been listed. BLM provides the desert tortoise a level of protection and consideration comparable to federally listed species. In 1988 a range wide management plan was issued by BLM to implement recommendations to improve management of desert tortoise habitat (BLM 1988). In 1996, the Arizona Interagency Desert Tortoise Team (AIDTT) issued the Management Plan for the Sonoran Desert Population of the Desert Tortoise in Arizona. This plan was designed to maintain or enhance Sonoran desert tortoise populations in Arizona (AIDTT 1996).

**Figure 2.** Sonoran Desert Tortoise Habitat III



## BLM Sensitive Species

The following species might occur within the Hot Springs allotment based on past observations and knowledge of habitat requirements for these species.

- Rosy boa – this species can be found in all areas of the allotments however, it is expected to be more common in boulder habitats.
- Chuckwalla – this species may be found in boulder habitats.
- Bats – multiple species of bat may forage and or roost on the allotment. Bats would roost in trees and in cracks and crevices of rock outcrops.

## Burros

Burros were first introduced to the Big Sandy River area in the 1860s, when mining began to

flourish around the confluence of the Big Sandy River and Santa Maria rivers. By the 1870s, mining and farming occurred throughout the Big Sandy River area. Escaped or released burros increased their numbers throughout the Big Sandy River area.

## **D. Land Use Designations**

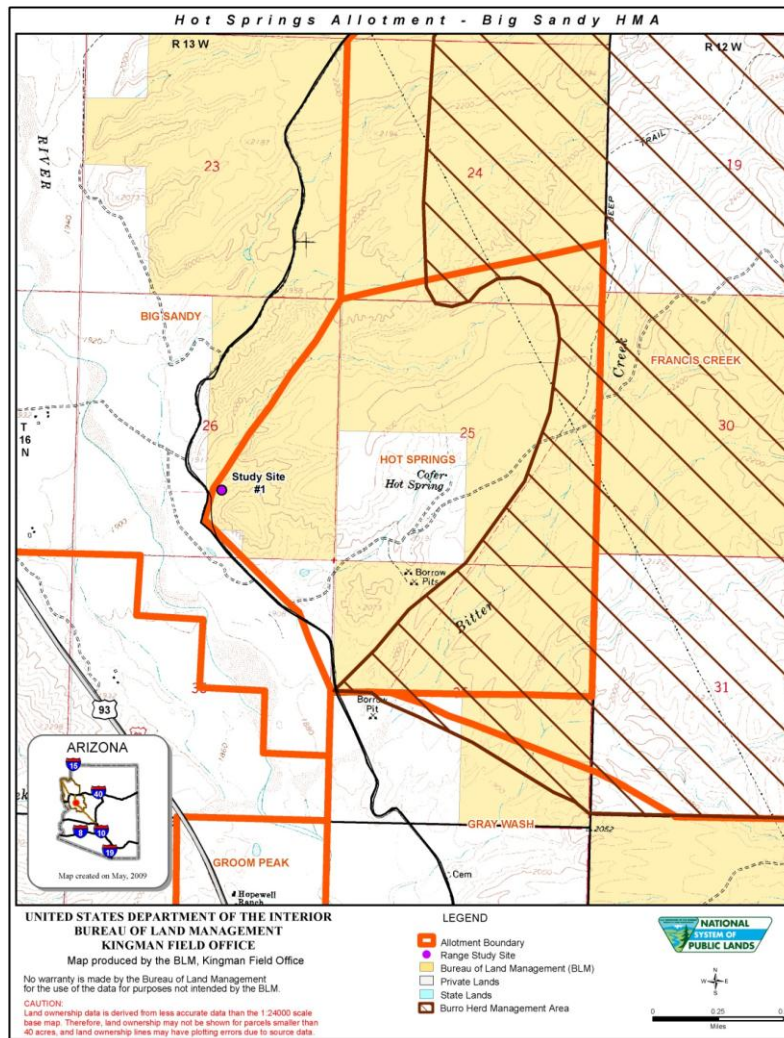
### **1. Grazing**

Grazing has been authorized to the Hualapai Tribe for the last ten years. The Hualapai Tribe has requested the permit to be changed to a year-long grazing schedule with 5 AU's.

### **2. Big Sandy Herd Management Area (HMA)**

The RMP carried forward the decision from Management Framework Plan (1981) that designated the HMA. The Big Sandy HMA contains 192,155 acres of public land. Management of wild burros in the Big Sandy HMA is in accordance with the Wild Free-Roaming Horse and Burro Act of 1971. Approximately 450 acres of the Hot Springs allotment lie within the boundaries of the Big Sandy Herd Management Area (HMA) (Figure 3). According to the Big Sandy HMA Plan, (1982) burro populations are managed to achieve the appropriate management level (AML) of 139.

**Figure 3.** Big Sandy Herd Management Area (HMA) in the allotment.



### 3. Cultural Resources

A number of known archaeological resources exist within this allotment. These sites include the historic Signal to Kingman Wagon Road, determined eligible for the National Register of Historic Places, a historic Hualapai cemetery, and a petroglyph site. Due to the allotment's close proximity to the Big Sandy River, unknown/undocumented historic and prehistoric sites are likely to exist in moderate densities.

## III. MONITORING METHODS

### A. Upland Health

To monitor for standard 1, upland health assessments were conducted following the guidance found in technical reference 1734-6 Interpreting Indicators of Rangeland Health (2005). Upland



health assessment is a qualitative assessment of the soil-related indicators such as rills, flow patterns, pedestals, bare ground, gullies, litter movement, soil compaction etc. (BLM 2005). Those attributes are measured at key areas located on the major soil types within the allotment which are representative of large portions of the allotment (BLM 1996).

The monitoring team consisted of a BLM soil scientist, wildlife biologist, two BLM range specialists, and two Hualapai Tribe range specialists. The team picked the soil types and correlating ecological sites based on moderate proximity to water, accessibility, slope, and forage to show cause and effect of livestock and wildlife use.

Seventeen indicators of rangeland health are used to determine if standards for rangeland health are being met, not met, or significant progress is being made towards meeting the standards. Those attributes are measured at \*key area(s) located on the major soil types within the allotment.

\*Key areas - “are indicator areas that are able to reflect what is happening on a larger area as a result of an on-the-the-ground management actions...should be a representative sample of a large stratum, such as a pasture, grazing allotment, wildlife habitat area, herd management area, watershed area, etc.” (Sampling Vegetation Attributes, Interagency Technical Reference, 1996 pg 3 (TR1730-002)).

**B. Riparian Health** – Riparian monitoring is not necessary as no riparian areas exist on public land on this allotment.

### **C. Desired Resource Conditions/ Desired Plant Community (DPC)**

The desired resource conditions are site-specific and defined as desired plant community (DPC) objectives. Vegetation attributes for composition, frequency, and cover were used to describe site specific plant community objectives. Attainment of the site specific objectives would ensure that Standard 3 is met. The key area DPC objectives are based on the site potential described in the ecological site guides developed by the NRCS, the potential for the site to change, measured field observations, and professional judgment. The following monitoring data is used to assess whether Standard 3 is being met:

- Cover - data was collected using the Pace-frequency method at key areas. Sampling techniques are described in Sampling Vegetation Attributes, Interagency Technical Reference, 1996, pg 40 (TR1730-002).
- Frequency - data was collected using the Pace-frequency method at key areas. Sampling techniques are described in Sampling Vegetation Attributes, Interagency Technical Reference, 1996, pg 37 (TR1730-002).
- Dry Weight Rank - plant composition data was collected using the Dry Weight Rank method at key areas. Sampling techniques for Dry Weight Rank are described in Sampling Vegetation Attributes, Interagency Technical Reference, 1996, pg 50 (TR1730-002).



- Utilization - utilization data was collected at upland transects within the key areas using the Grazed Class and Browse Utilization Class Method, as described in, Utilization Studies and Residual Measurements, Interagency Technical Reference, 1996 pg 109, 83 (TR1730-004).

#### IV. OBJECTIVES, DATA SUMMARY AND CONCLUSIONS

The Arizona's Standards for Rangeland Health and Guidelines (AS&G's) established three standards for rangeland health. For detailed information, see Arizona's Standards for Rangeland Health and Guidelines for Grazing Administration (BLM 1997). This section summarizes the data, compares it to the standards, and makes conclusions on the condition of the Hot Springs allotment.

##### A. Standard 1: Upland Health

Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate and landform (ecological site) (BLM 1997).

##### Standard 1: Met at Key Area

Rationale: Upland soils exhibit infiltration, permeability, and erosion rates that are appropriate to soil type, climate, and landform (ecological site). Assessment results from all key areas indicate a none to slight departure from attributes measured at the key area. Attributes such as cover data and a qualitative and quantitative assessment of the soil-related indicators such as rills, flow patterns, pedestals, bare ground, gullies, litter movement, soil compaction etc. (Interpreting Indicators of Rangeland Health TR 1734-6). The ID team evaluated the ratings of the 17 indicators on a site specific basis and made a collective rating of none to slight which is the least departure from normal as indicated in Table 4 and the sites' reference sheet.

**Table 4.** Upland Assessment of Standard 1.

Key Area 2	Upland Assessment	Key Area Total Perennial Vegetative Cover
17 Indicators of Rangeland Health	Rating	Comments
Rills	N/S	What is expected for site
Water-flow patterns	N/S	Natural armored flow patterns
Pedestals/Terracettes	N/S	None found in area
Bare ground	N/S	5% bare ground. Gravel, cobble, and vegetation very well armored
Gullies	N/S	None found on site
Wind scoured, blowouts, and /or deposition areas	N/S	None found on site
Litter movement	N/S	Litter remains under shrubs

Soil resistance to erosion	N/S	41% rock greater than 3". Site protected well
Soil surface loss	N/S	Except in natural break areas
Plant community composition and distribution relative to infiltration	N/S	Canopy 28%: 20% shrubs, 3.5% trees, 23% grasses. Distribution is good throughout site
Compaction layer	N/S	Non-existent because of rock and gravel
Functional/structural groups	N/S	Dominance by weight: Shrubs, succulents, grasses and forbs. Site has good diversity
Plant mortality/decadence	N/S	Low mortality on all species
Litter amount	N/S	Herbaceous litter is 8.1% and distributed well
Annual Production	N/S	Good annual production in all groups
Invasive plants	N/S	Some red brome found on site
Reproductive capability of perennial plants	N/S	Site had young, medium, and mature growth

**B. Standard 2:** Riparian Health – No riparian exists within the allotment on public land.

**C. Standard 3:** Desired Resource Condition /Desired Plant Community (DPC)

Productive and diverse upland and riparian-wetland plant communities of native species exist and are maintained (BLM 1997).

Key area # 1 Ecological Site - *Loamy Breaks 7-10" p.z.*

Cover is currently at 34% and composition at 43%.

Current plant composition:	Current total for grasses/shrubs	Composition Objective
Big galleta 23%	23%	20-30%
Flattop buckwheat 7%	20%	10-15%
Saltbush 6%		
Mormon tea 1%		
Twinberry 6%		

### Standard 3: Met

#### Rationale

Objective for cover is to maintain at 30-35% and for composition between 40-50%. Both objectives were met or exceeded as compared to the ecological site description.

#### D. Other Plan Objectives

The Kingman Resource Management Plan (BLM 1995), and the Hualapai Aquarius EIS (BLM 1981) were reviewed to determine goals and objectives that apply to this evaluation. The goals and objectives would be met if Standards for rangeland health are met.

## E. Utilization

The Hualapai Aquarius EIS states: “Manage for moderate use (40-60%) of current year’s growth on key forage species. If utilization consistently exceeds moderate use over a period of 2 years, apply management changes as necessary before undesirable long-term trend is identified by monitoring” (1981). Use was measured in 2008 and showed use on big galleta was 29% and 33% on twinberry which did not exceed the Hualapai Aquarius EIS objective.

## F. Weather Data

This region is influenced by winter Pacific frontal storms and summer convective storms. Approximately 65% of the annual precipitation falls during the cooler months of October through April with approximately 35% of the annual precipitation falling during the months of May through September. This bi-modal rainfall pattern results in two distinct growing seasons which occur in the spring and summer.

Data is available from individual BLM rain gauges located throughout the immediate region and from a National Oceanic and Atmospheric Administration weather station in Wikieup, Arizona. Over a twenty-four year period, precipitation has varied from a low of 1.82 inches per year to a high of 18.36 inches per year with an average of 8.9 inches at the Wikieup, Arizona weather station. See Appendix 1.

## V. TECHNICAL RECOMMENDATIONS

Technical recommendations are made to ensure that standards will be met or will continue to be met if livestock grazing is authorized. Technical recommendations may be analyzed in the environmental assessment and may become terms and conditions in the permit.

### 1. Managed Grazing:

It is proposed to change the current grazing system of 20 animal units (AU’s) authorized from 3/1 to 3/3 and 20 AU’s from 12/15 to 2/28, to an authorization from 3/1 to 2/28 with 5 AU’s (60 AUM’s) in consultation, coordination and cooperation with the Hualapai Tribe and interested publics during the preparation of the environmental assessment.

### 2. Actual Use

Permittee would provide actual use data including: number of livestock, period of use, and location of livestock by pasture, geographic area, or service area. Providing actual use is covered by 43 CFR 4130.3-2.

## VI. CONSULTATION

The following timeline summarizes actions the Kingman BLM has taken to consult, cooperate, and coordinate with the affected livestock operator(s) and interested parties on the Standards and Guidelines.

**December 10, 2008** – Monitoring for composition and trend by BLM team of P. Hobbs, M. Blanton, A. Wilhelm, and David Brock.

**December 16, 2009** – BLM sent CCC letter to interested publics, agencies, and permittee showing allotment.

**July 16, 2009** – BLM started gathering information for the allotment evaluation for Hot Springs allotment.

**March 2, 2010** – BLM talked with Robbie Honani about possible solutions to the grazing schedule.

**March 23, 2010** – BLM with Joel Querta and Robbie Honani to talk about management plan for Hot Springs allotment and application for changes.

**March 29, 2010** – BLM went to Wikieup with Robbie Honani of Hualapai Tribe to check on Hot Springs compliance.

**April 7, 2011** – BLM met with members of the Hualapai Tribe, (Wilfred Whatoname-Chairman, Erin S. Forrest, Joel J. Querta-HDNR Ag Program Manager, Scott Crozier-Game and Fish Manager, and Robinson Honani-Range Specialist. Discussed topics included grazing schedule, water development, fences, and the general condition of the allotment.

**April 11, 2011** – BLM sent an email to the following members of the Hualapai Tribe, (Wilfred Whatoname-Chairman, Sr, Erin S. Forrest, Joel J. Querta-HDNR Ag Program Manager, Scott Crozier-Game and Fish Manager, and Robinson Honani-Range Specialist to answer question on grazing schedule, water development, fences, and the general condition of the allotment for future use.

**August 1, 2011** – Sent out land health evaluation to the permittee and the interested publics.

The following people were involved with the completion of this evaluation:

- Joel Querta, Agricultural Program Manager, Hualapai Tribe
- Don McClure, Assistant Field Manager-Renewable Resources, Kingman Field Office
- Sally Olivieri, GIS Specialist, Kingman Field Office
- June Wendlandt, Wild Horse and Burro Specialist, Kingman Field Office
- Tim Watkins, Archaeologist, Kingman Field Office
- Paul Hobbs, Soil Scientist, Kingman Field Office
- Ammon Wilhelm, Wildlife Biologist, Kingman Field Office
- David Brock, Rangeland Management Specialist, Kingman Field Office
- Abe Clark, Range Management Specialist
- Cristina Francois, Research Specialist, University of Arizona
- Trevor Buhr, Habitat Program Manager, Arizona Game and Fish Department, Region III

## VII. REFERENCES

Arizona Interagency Desert Tortoise Team. 1996. Management plan for the Sonoran Desert Population of the Desert Tortoise in Arizona.

Bureau of Land Management. 2000, 2001, 2002, 2005. Rangeland Health Assessments. Technical Reference 1734-6, 2005, Interpreting Indicators of Rangeland Health (Ver 4).

Bureau of Land Management. 1999. IMAZ-99-012. Plan for Implementing the Arizona's Standards for Rangeland Health and Guidelines for Grazing Administration.

Bureau of Land Management. 1997. Arizona's Standards for Rangeland Health and Guidelines for Grazing Administration.

Bureau of Land Management. 1996. *Sampling Vegetation Attributes*. Interagency Technical Reference, (TR1730-002).

Bureau of Land Management. 1996. Utilization Studies and Residual Measurements, Interagency Technical Reference. (TR1730-004).

Bureau of Land Management. 1995. *Kingman Resource Area Resource Management Plan and Final Environmental Impact Statement*. Kingman Resource Area Office, Kingman, AZ. Glossary.

Bureau of Land Management. 1988. Desert Tortoise Habitat Management on the Public Lands: A Rangeland Plan. Washington D.C.

Bureau of Land Management. 1982. Big Sandy Herd Management Area Plan.

Bureau of Land Management. 1981. Hualapai-Aquarius EIS. Kingman Resource Area Office, Kingman, AZ.

NRCS Ecological Site Guides, Ecological Site Description (ESD) System for Rangeland and Forestland. 2010. <http://esis.sc.egov.usda.gov/Welcome/pgESDWelcome.aspx>

NRCS. 2006. Soil Survey of Mohave County, Southern Part. <http://websoilsurvey.nrcs.usda.gov/app/>

## VIII. APPENDICES

### Appendix 1. Precipitation Data sheet

Year	Yearly total	24-Year Average Annual Rainfall (Inches) Wikieup [8.9]	(Feb-May) Spring Growth Period Rainfall	24 Year (Feb-May) Average Rainfall (2.8")	(Jul-Oct) Summer Growth Period Rainfall	24 Year (Jul-Oct) Average Rainfall (3.4)
FY 2007	7.08	B/average {8.5}	0.46	Below	5.12	Above
FY 2006	5.86	B/average	1.71	Below	4.49	Above
FY 2005	14.96	A/average	5.31	Above	6.24	Above
FY 2004	14.54	A/average	2.35	Below	6.48	Above
FY 2003	7.92	B/average	4.45	Above	2.12	Below
FY 2002	1.82	B/average	0	Below	1.75	Below
FY 2001	5.41	B/average	2	Below	0.83	Below
FY 2000	2.71	B/average	0	Below	2.56	Below
FY 1999	6.55	B/average	2.04	Below	3.98	Above
FY 1998	8.72	B/average	0.66	Below	6.63	Above
FY 1997	7.89	B/average	1.14	Below	4.38	Above
FY 1996	2.97	B/average	2.26	Below	0.06	Below
FY 1995	8.46	B/average	3.47	Above	0.96	Below
FY 1994	4.13	B/average	0.81	Below	0.81	Below
FY 1993	18.36	A/average	7.01	Above	2.99	Below
FY 1992	16.32	A/average	10.51	Above	1.88	Below
FY 1991	10.03	A/average	6.23	Above	2.05	Below
FY 1990	9.33	A/average	1.88	Below	5.75	Above
FY 1989	5.82	B/average	0.48	Below	2.27	Below
FY 1988	10.62	A/average	3.03	Above	4.95	Above
FY 1987	10.62	A/average	1.38	Below	4.04	Above
FY 1986	11.09	A/average	4.17	Above	4.02	Above
FY 1985	10.63	A/average	3.04	Above	2.49	Below
FY 1984	11.53	A/average	0.03	Below	5.87	Above